

# I-81 VIADUCT PROJECT - PHASE 1, CONTRACT 1

PIN 3501.90, Contract D900054

# DB CONTRACT DOCUMENTS REQUEST FOR PROPOSALS

PART 7
ENGINEERING DATA
(PART 2 OF 2)

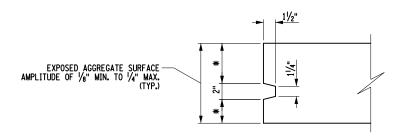
**Final June 17, 2022** 

### **ENGINEERING DATA**

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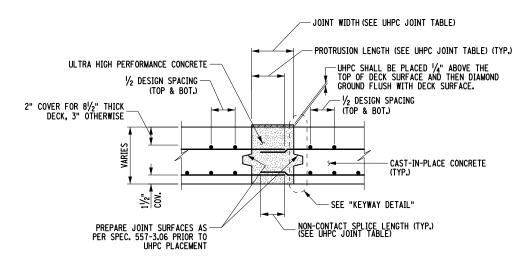
STRUCTURAL DETAILS
RESTORATION PLANS
HAZARDOUS WASTE CONTAMINATED MATERIALS ADDITIONAL INFORMATION
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HIGHWAY BOUNDARY PLANS
ROW ACQUISITION MAPS
STAGING AREA PLANS
SANITARY SEWER SYSTEM REQUIREMENTS

### **Structural Details**



\* - PROVIDE DIMENSION TO AVOID INTERFERENCE WITH THE REINFORCEMENT.

### KEYWAY DETAIL



LONGITUDINAL UHPC JOINT

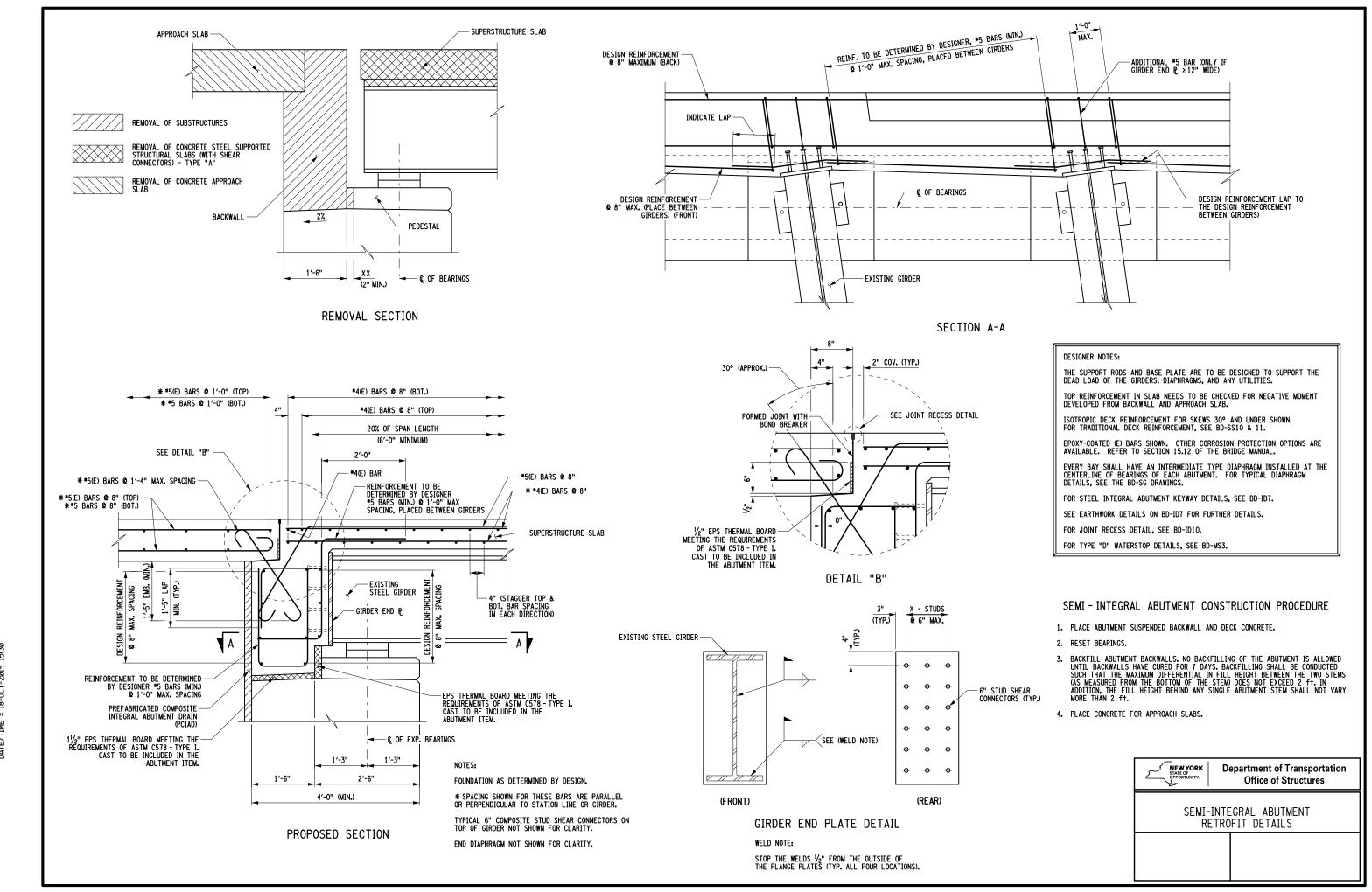
UHPC JOINT TABLE							
BAR SIZE	JOINT	PROTRUSION	SPLICE	CLEAR SPACING			
DAR SIZE	WIDTH	LENGTH	LENGTH	MINIMUM	MAXIMUM		
*4	6"	5"	4"	1"	4"		
#5	7"	6"	5"	11/4"	5"		
#6	9"	71/2"	6"	11/2"	6"		

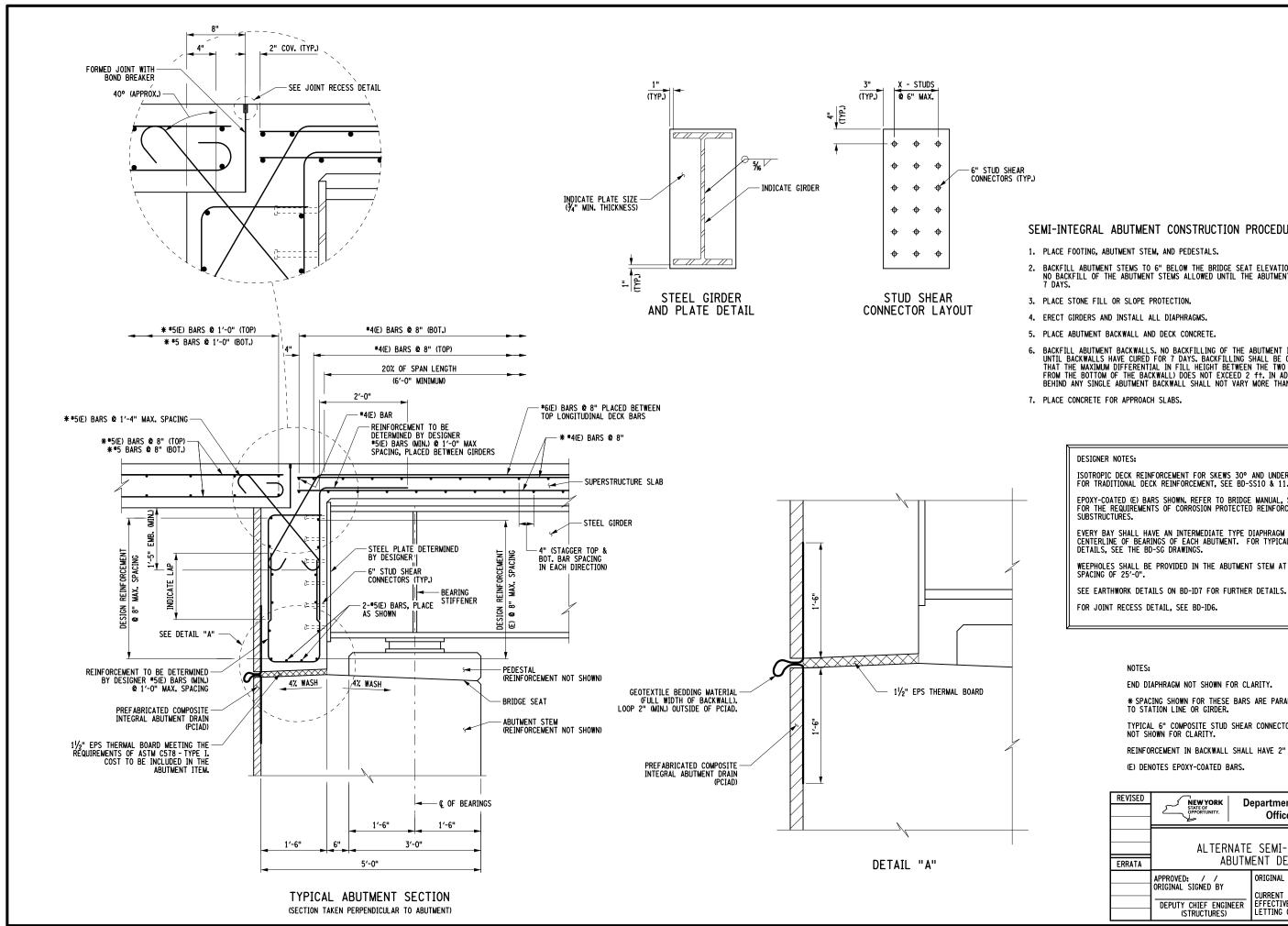
DESIGNER NOTE:

UHPC JOINT TABLE IS APPLICABLE FOR ALL BAR TYPES WITH A YIELD STRENGTH NO GREATER THAN 75 KSI.

NEW YORK
STATEOF
OPPORTUNITY.

LONGITUDINAL UHPC CLOSURE POUR DETAILS





### SEMI-INTEGRAL ABUTMENT CONSTRUCTION PROCEDURE

- 1. PLACE FOOTING, ABUTMENT STEM, AND PEDESTALS.
- 2. BACKFILL ABUTMENT STEMS TO 6" BELOW THE BRIDGE SEAT ELEVATION. NO BACKFILL OF THE ABUTMENT STEMS ALLOWED UNTIL THE ABUTMENTS HAVE CURED FOR
- 3. PLACE STONE FILL OR SLOPE PROTECTION.
- 4. ERECT GIRDERS AND INSTALL ALL DIAPHRAGMS.
- 5. PLACE ABUTMENT BACKWALL AND DECK CONCRETE.
- 6. BACKFILL ABUTMENT BACKWALLS. NO BACKFILLING OF THE ABUTMENT IS ALLOWED UNTIL BACKWALLS HAVE CURED FOR 7 DAYS. BACKFILLING SHALL BE CONDUCTED SUCH THAT THE MAXIMUM DIFFERENTIAL IN FILL HEIGHT BETWEEN THE TWO ABUTMENTS (AS MEASURED FROM THE BOTTOM OF THE BACKWALL) DOES NOT EXCEED 2 ft. IN ADDITION, THE FILL HEIGHT BEHIND ANY SINGLE ABUTMENT BACKWALL SHALL NOT VARY MORE THAN 2 ft.
- 7. PLACE CONCRETE FOR APPROACH SLABS.

#### DESIGNER NOTES:

ISOTROPIC DECK REINFORCEMENT FOR SKEWS 30° AND UNDER SHOWN. FOR TRADITIONAL DECK REINFORCEMENT, SEE BD-SS10 & 11.

EPOXY-COATED (E) BARS SHOWN. REFER TO BRIDGE MANUAL, SECTION 15.12 FOR THE REQUIREMENTS OF CORROSION PROTECTED REINFORCEMENT IN

EVERY BAY SHALL HAVE AN INTERMEDIATE TYPE DIAPHRAGM INSTALLED AT THE CENTERLINE OF BEARINGS OF EACH ABUTMENT. FOR TYPICAL DIAPHRAGM DETAILS, SEE THE BD-SG DRAWINGS.

WEEPHOLES SHALL BE PROVIDED IN THE ABUTMENT STEM AT A MAXIMUM SPACING OF 25'-0".

FOR JOINT RECESS DETAIL, SEE BD-ID6.

END DIAPHRAGM NOT SHOWN FOR CLARITY.

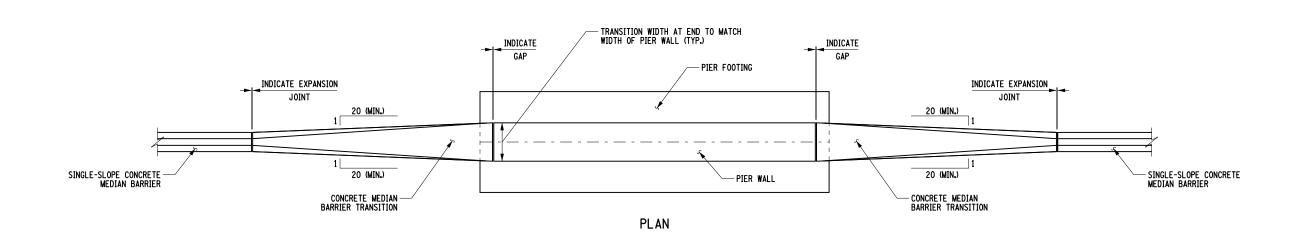
\* SPACING SHOWN FOR THESE BARS ARE PARALLEL OR PERPENDICULAR TO STATION LINE OR GIRDER.

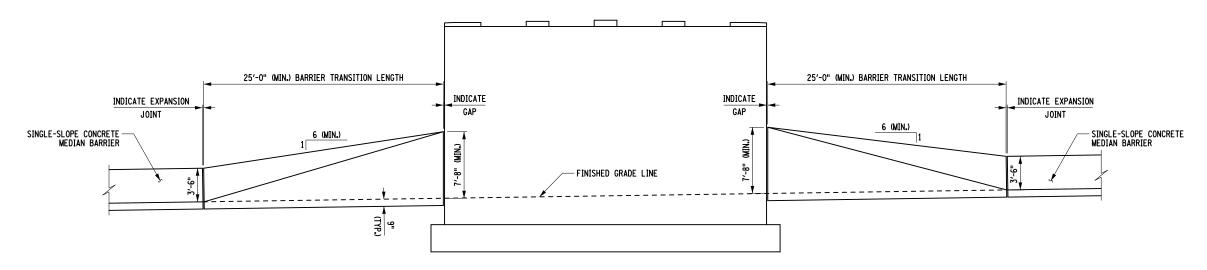
TYPICAL 6" COMPOSITE STUD SHEAR CONNECTORS ON TOP OF GIRDER NOT SHOWN FOR CLARITY.

REINFORCEMENT IN BACKWALL SHALL HAVE 2" COVER.

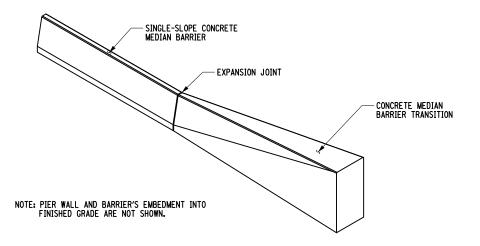
(E) DENOTES EPOXY-COATED BARS.

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		SEMI-INTEGRAL	
ERRATA	ABUIM	ENT DETAILS	
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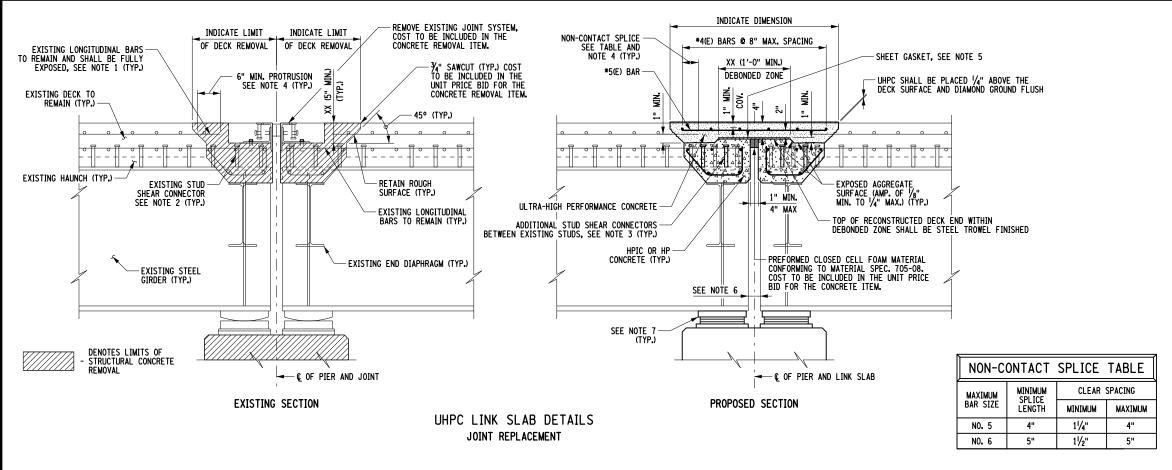


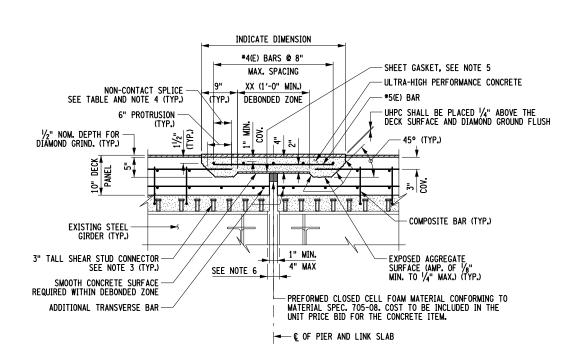
**ELEVATION** 



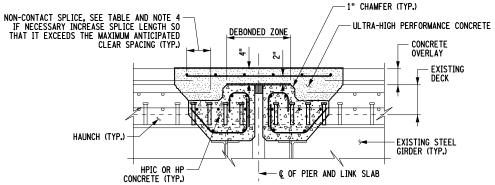
ISOMETRIC OF BARRIER TRANSITION

NEW YORK STATE OF OPPORTUNITY.	D	epartment of Transportation Office of Structures
BARRIER TO	PIE	R TRANSITION DETAILS
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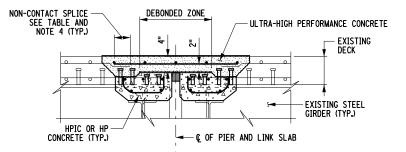




UHPC LINK SLAB DETAIL
PRECAST DECK PANELS
(DECK REPLACEMENT SHOWN, NEW SUPERSTRUCTURE SIMILAR)



SCHEMATIC UHPC LINK SLAB DETAIL
JOINT REPLACEMENT - CONCRETE OVERLAY



SCHEMATIC UHPC LINK SLAB DETAIL JOINT REPLACEMENT - WITHOUT GIRDER HAUNCH

#### DESIGNER NOTES:

THE EPOXY COATED BARS SHOWN MAY NEED TO BE CHANGED TO MEET THE REINFORCEMENT CORROSION PROTECTION REQUIREMENTS SPECIFIED IN THE BRIDGE MANUAL.

THE MINIMUM GIRDER END GAP SHALL BE INDICATED IN THE NOTES.
THIS GAP SHALL BE MAXIMIZED TO THE LARGEST EXTENT FEASIBLE
WHILE CONSIDERING THE EXISTING GAP, ALLOWANCES FOR MINOR
AMOUNTS OF SUPERSTRUCTURE MOVEMENT/SHIFTING DURING
CONSTRUCTION OPERATIONS, AND PREVENTING THE GIRDER'S BOTTOM
FLANGES FROM CONTACTING EACH OTHER WHEN ADJOINING SPANS ARE
SIMULTANEOUSLY SUBJECT TO LIVE LOADS.

THE PRECAST DECK PANELS DETAIL DEPICTS TRADITIONAL REINFORCEMENT AND A STANDARD UHPC HAUNCH. THIS DETAIL SHALL BE MODIFIED WHEN USING ISOTROPIC REINFORCEMENT AND/OR A LOW PROFILE HAUNCH.

WHEN USING AN ASPHALT OVERLAY, IT SHALL BE PLACED OVER THE UHPC LINK SLAB. PLACING THE UHPC 0.25 INCHES ABOVE THE CONCRETE DECK SURFACE AND GRINDING FLUSH IS STILL REQUIRED.

SCHEMATIC DETAILS ARE ONLY INTENDED TO SHOW ACCEPTABLE MODIFICATIONS TO THE LINK SLAB, AND DECK END, GEOMETRY FOR VARIOUS EXISTING CONDITIONS. ALL OF THE REQUIREMENTS AND ANNOTATIONS PROVIDED IN THE UHPC LINK SLAB JOINT REPLACEMENT DETAILS SHALL APPLY AND BE SHOWN ON THE CONTRACT PLANS.

#### NOTES:

- 1. WHERE EXISTING BARS ARE DAMAGED DURING REMOVAL OF EXISTING DECK CONCRETE, DRILL AND GROUT \*5(E) DOWELS CENTERED BETWEEN EXISTING DECK BARS TO MATCH SPACING AT NO COST TO THE STATE. GROUT MATERIAL CONFORMING TO NYS MATERIAL SPECIFICATION 701-05 INSTALLED IN ACCORDANCE WITH THE NYS STANDARD SPECIFICATION SECTION 586-3.01. NON-DESTRUCTIVE INVESTIGATION AND PULL DILL TEST NOT REGULIEFD.
- 2. EXISTING STUD SHEAR CONNECTORS MAY REMAIN UNLESS THEY INTERFERE WITH THE DEBONDED ZONE OF THE UHPC LINK SLAB.
- 3. STUD SHEAR CONNECTOR SPACING UNDERNEATH THE LINK SLAB SHALL NOT EXCEED 5 INCHES IN ANY DIRECTION. THE USE OF OTHER TYPES OF SHEAR CONNECTORS ARE PROHIBITED.
- 4. LONGITUDINAL REINFORCEMENT SPLICES ARE NOT PERMITTED IN THE DEBONDED ZONE.
- 5. COMPRESSED SYNTHETIC SHEET GASKET (0.0625 INCH THICK SHEET, TREATED BOTH SIDES), CONFORMING TO MATERIAL SPECIFICATION 728-06, SHALL COVER THE ENTIRE SURFACE OF RECONSTRUCTED DECK ENDS, OR PRECAST PANEL ENDS, WITHIN THE DEBONDED ZONE. COST TO BE INCLUDED IN THE UNIT PRICE BID FOR THE CONCRETE ITEM.
- 6. A MINIMUM GIRDER END GAP OF \_\_\_ INCHES SHALL BE PROVIDED BETWEEN ADJACENT SPANS. THIS MUST BE VERIFIED PRIOR TO POURING THE LINK SLAB. ANY ADJUSTMENTS REQUIRED SHALL BE MADE AT NO ADDITIONAL COST TO THE STATE.
- 7. UPON INSTALLATION OF THE PROPOSED BEARINGS, THE CONTRACTOR SHALL INSTALL TEMPORARY BLOCKING TO ENSURE GLOBAL STABILITY OF THE ENTIRE SUPERSTRUCTURE SYSTEM PRIOR TO THE INSTALLATION OF THE LINK SLABIS, THE CONTRACTOR SHALL SUBMIT THE TEMPORARY BLOCKING PROCEDURE TO THE DCES FOR APPROVAL PRIOR TO THE REMOVAL OF THE EXISTING BEARINGS. THE COST OF TEMPORARY BLOCKING SHALL BE INCLUDED IN THE BEARING REMOVAL ITEMS. AS PART OF THE SUBMITTAL, THE CONTRACTOR MUST SUBMIT A SCHEDULE FOR CHECKING THAT THE BLOCKING MECHANISMS INSTALLED ARE FUNCTIONING AS INTENDED, AND FOR PERFORMING ROUTINE MAINTENANCE, SUCH AS MAKING ADJUSTMENTS FOR THE SUPERSTRUCTURE'S THERMAL MOVEMENTS, FOR THE DURATION OF THE TIME THAT THEY REMAIN IN PLACE.
- 8. IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 565-3.05
  AND AFTER ALL LINK SLABS HAVE CURED FOR A MINIMUM OF SEVEN
  DAYS, THE ALIGNMENT OF ALL EXPANSION BEARINGS SHALL BE
  MEASURED AND ADJUSTMENTS MADE IF REQUIRED.
- 9. (E) DENOTES EPOXY COATED BARS.

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	DEPUTY CHIEF ENGINEER (STRUCTURES)	CURRENT ISSUED UNDER EB EFFECTIVE WITH THE LETTING OF / /

EXISTING CONCRETE BARRIER

CONSTRUCTION JOINT (TYP.)

EXISTING BAR TO REMAIN (TYP.) -

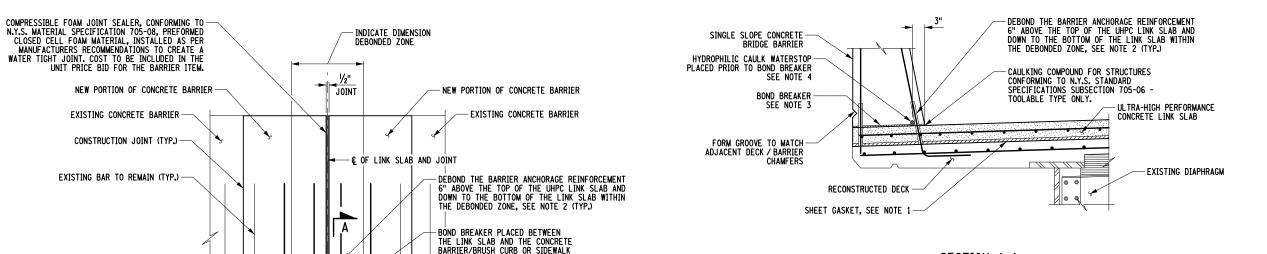
RECONSTRUCTED DECK END (TYP.)

ELEVATION RELIEF JOINT OVER UHPC LINK SLAB
(SINGLE SLOPE CONCRETE BARRIER SHOWN, SIDEWALK AND BRUSH CURB SIMILAR)

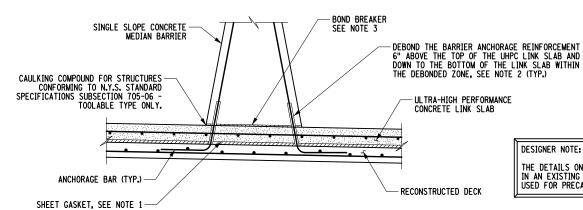
(VERTICAL FACED CONCRETE PARAPET WITH SIDEWALK)

SIDEWALK

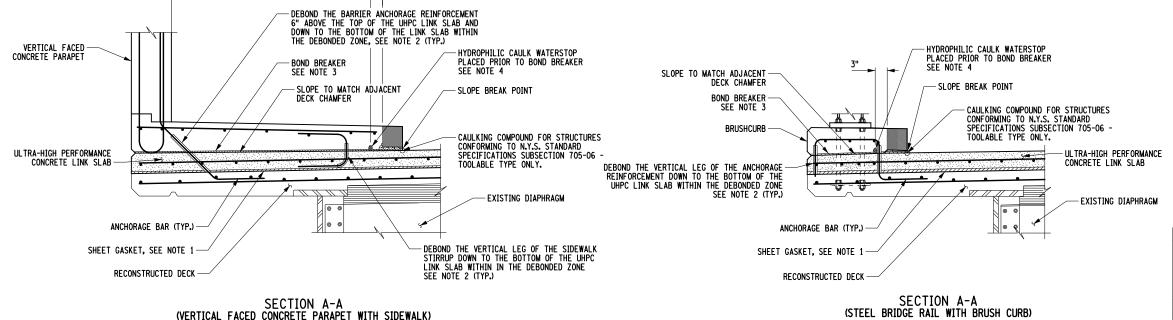
STEEL GIRDER (TYP.)



SECTION A-A (SINGLE SLOPE CONCRETE BRIDGE BARRIER)



SECTION A-A (SINGLE SLOPE CONCRETE MEDIAN BARRIER)



SEE SECTION A-A AND NOTE 3

- EXISTING DECK

ULTRA-HIGH PERFORMANCE

SHEET GASKET, SEE NOTE 1

CONCRETE LINK SLAB

#### DESIGNER NOTE:

THE DETAILS ON THIS DRAWING DEPICT A UHPC LINK SLAB INSTALLED IN AN EXISTING CAST-IN-PLACE DECK. SIMILAR DETAILS SHALL BE USED FOR PRECAST DECK PANELS.

### NOTES:

- 1. COMPRESSED SYNTHETIC SHEET GASKET (0.0625 INCH THICK SHEET, TREATED BOTH SIDES), CONFORMING TO MATERIAL SPECIFICATION 728-06, SHALL COVER THE ENTIRE SURFACE OF RECONSTRUCTED DECK ENDS, OR PRECAST PANEL ENDS, WITHIN THE DEBONDED ZONE. COST TO BE INCLUDED IN THE UNIT PRICE BID FOR THE CONCRETE ITEM.
- 2. DEBOND ALL REINFORCEMENT THAT EXTENDS OUT OF THE UHPC LINK SLAB WITHIN THE DEBONDED ZONE AS INDICATED IN THE DETAILS. DEBONDING SHALL BE ACCOMPLISHED BY WRAPPING BARS WITH A MINIMUM OF 3 LAYERS OF HEAVY DUTY DUCT TAPE.
- 3. BOND BREAKER USED AT THE INTERFACE OF THE LINK SLAB AND BARRIER, SIDEWALK, OR BRUSH CURB SHALL BE SIKA BONDBREAKER W, WAX BASED BOND BREAKER MATERIAL, OR APPROVED EQUAL.
- 4. THE COST OF THE HYDROPHILIC CAULK/SEAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE LINK SLAB CONCRETE ITEM. THE CAULK/SEAL MANUFACTURER AND INSTALLATION SHALL BE APPROVED BY THE ENGINEER. THE HYDROPHILIC CAULK/SEAL SHALL BE PROTECTED
- 5. THE BARS SHOWN IN THE BARRIER ARE THE ANCHORAGE BARS ORIGINATING IN THE DECK. FOR BARRIER REINFORCEMENT DETAILS SEE THE BD-RCB SERIES.

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ANCHOR STUDS | WELD SIZE | WASHER PLATE |

(SQ. In.) CLEARANCE Wm Lm Tm E+ E1 Ez Am Bm DIA. STUDS/BRG. A B AWP BWP Ws Ls T1 T2 WI LI TI

MASONRY PLATE

SOLE PLATE

LOAD PLATE

SLIDING EXPANSION ELASTOMERIC BEARING (TYPE E.B.) TABLE

COMP. AREA SHEAR AREA \* (G) GUIDE

ELASTOMER LAYER

THK/LAYER NO. LAYERS L W D

QUANTITY D.L. + S.D.L. L.L. WITHOUT REQUIRED (Kips)

ITEM NO.

LOCATION

= BD-BG7\_2020-R0E0. = 31-MAY-2022 12:42

FILE NAME DATE/TIME

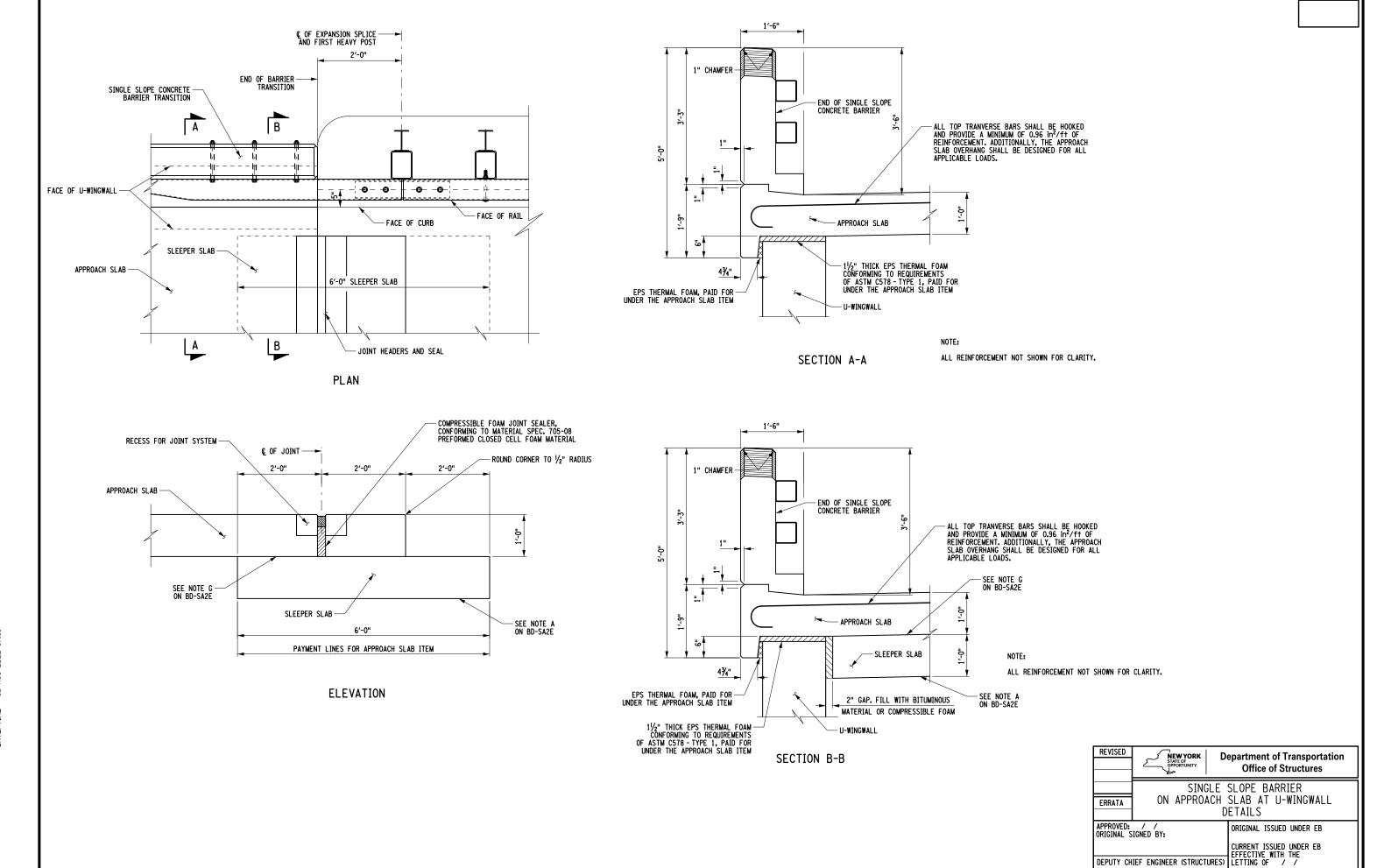
TOTAL DESIGN

SHAPE

BWP Bm

> -¾" THICK WASHER №

> > - C OF SLOT





### **UHPC Link Slab Design**

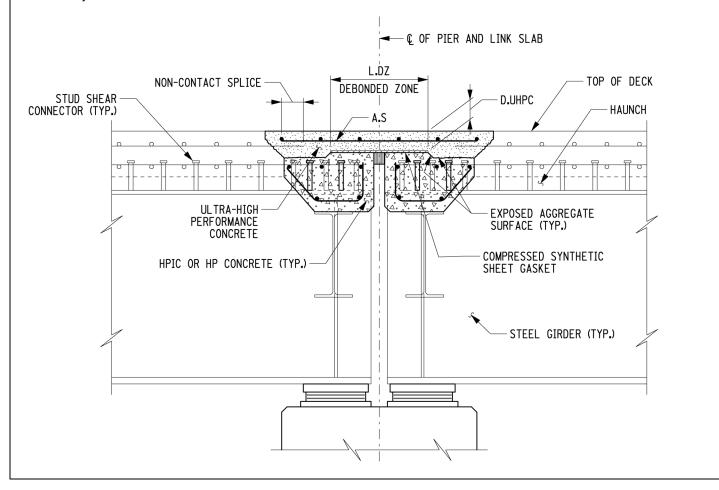
	BIN:	
	PIN:	
Job Title:		

### **EXAMPLE**

The NYSDOT Office of Structures has developed an innovative link slab design utilizing Ultra-High Performance Concrete (UHPC). The results of our investigation into the behavior of UHPC link slabs showed that the force required to strain the UHPC in pure tension is extremely large and nearly all of the translation, due to the girder's end rotation, will occur at the bearings. Therefore, the link slab design assumes that the UHPC section is subject to bending only. Although not accounted for in the design of the link slab, due to the conservative approach taken for bending, the link slab also acts as a semi-rigid link that transfers lateral loads between spans.

Our design uses a strain based analysis, where the extreme fiber tensile strain in the UHPC is determined by the amount of girder end rotation, under the assumption of linearly elastic flexural behavior. Using stress-strain relationships, the location of the neutral axis is found through an iterative algorithm. Upon convergence of the assumed and calculated neutral axis location, the tensile strain and compressive stress in the UHPC, along with the stress in the longitudinal steel reinforcement, is computed and compared to allowable values.

In tension, UHPC develops closely spaced micro-cracks as a result of its high strength steel fibers being dispersed throughout a matrix of fine aggregates and supplementary cementitious materials. Due to this unique tensile behavior, UHPC has the ability to withstand ultimate tensile strains up to 0.007. It is this attribute that allows UHPC link slabs to accommodate the girder's end rotations within a relatively short length. For design, a maximum strain of 0.0035 at the extreme tensile fiber was chosen in order to limit the crack widths to a level that will not permit the penetration of moisture and chlorides, ensuring a highly durable solution for the elimination of deck joints.





### **UHPC Link Slab Design**

### **EXAMPLE**

### **User Inputs**

- Indicates user input

 $f_v := 60 \text{ksi}$ 

reinforcement yield strength

 $E_s := 29000 ksi$ 

reinforcement modulus of elasticity (LRFD 5.4.3.2)

$$A_{S} := \frac{0.31 \text{in}^2}{8 \text{in}} = 0.47 \cdot \frac{\text{in}^2}{\text{ft}}$$

area of longitudinal reinforcement at joint

 $\theta_{LL} := 0.00506$ rad

unfactored live load girder end rotation (use average rotation of linked spans if they are not equal)

 $L_{dz} := 16in$ 

debonded zone length

 $d_{bf} := 6.32ft$ 

vertical distance from top of deck to bottom of bottom flange

Note: The following inputs are standard and not editable by the user.

 $E_c := 8000 ksi$ 

**UHPC** compressive modulus of elasticity

 $f_{uhpc.t.all} := 1.2ksi$ 

UHPC tensile cracking stress

 $f_{uhpc.c.all} := -14ksi$ 

maximum allowable UHPC compressive stress

$$\varepsilon_{\text{uhpc.t.all}} := 3500 \ 10^{-6}$$

maximum allowable UHPC tensile strain

 $d_{uhpc} := 4in$ 

depth of UHPC

### Flexural Analysis of Link Slab

width of section b := 1 ft

 $A_s := A_s \cdot b = 0.47 \cdot in^2$ 

area of reinforcement within section

 $c := \begin{bmatrix} eci \leftarrow 1 & 10^{-6} \\ ec \leftarrow 1 \\ i \leftarrow 1 \end{bmatrix}$ 

iterative algorithm to determine distance from bottom of section to neutral axis

while eci < ec

 $h := \, d_{uhpc} = 4.0 \cdot in \qquad \text{ depth of UHPC}$ 

 $f_t := f_{uhpc.t.all} = 1.2 \cdot ksi$ 

assumed maximum tensile stress of UHPC

 $\theta := 1.75 \cdot \theta_{LL} = 0.51 \cdot \deg$ 

Strength I girder end rotation

$$fc \leftarrow eci \cdot E_c$$

$$c \leftarrow \frac{\sqrt{A_s^2 \cdot E_s^2 \cdot eci}^2 + fc \cdot A_s \cdot E_s \cdot b \cdot h \cdot eci + b^2 \cdot f_t^2 \cdot h^2} + b \cdot f_t \cdot h - A_s \cdot E_s \cdot eci}{b \cdot f_c + 2 \cdot b \cdot f_t}$$

$$ec \leftarrow \frac{-2 \cdot \theta \cdot c}{L_{dz}}$$

$$eci \leftarrow eci + 0.1 \cdot 10^{-6}$$

$$i \leftarrow i + 1$$

out 
$$\leftarrow$$
 "Error" if  $(c < 0 \text{in}) \lor (c > d_{uhpc}) \lor \left(\frac{\text{max}(|ec|, eci)}{\text{min}(|ec|, eci)} - 1 > 5\%\right)$ 

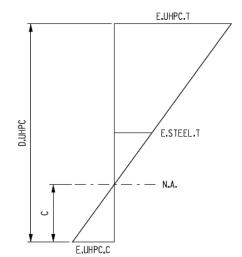
out  $\leftarrow$  c otherwise

return out

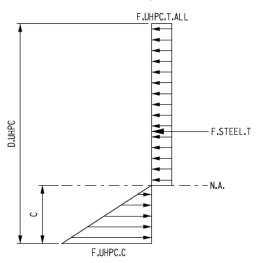
### UHPC Link Slab Design

### **EXAMPLE**

### Strain Diagram



### Stress Diagram



distance from bottom of section to neutral axis  $c = 1.04 \cdot in$ 

$$\varepsilon_{uhpc.t} \coloneqq \frac{2 \cdot \theta \cdot \left(d_{uhpc} - c\right)}{L_{dz}} = 3280 \cdot 10^{-6} \qquad \text{tensile strain in UHPC}$$

$$\varepsilon_{s.t} \coloneqq \frac{2 \cdot \theta \cdot \left(\frac{d_{uhpc}}{2} - c\right)}{L_{dz}} = 1067 \cdot 10^{-6} \qquad \text{tensile strain in reinforcement}$$

$$f_{s,t} \coloneqq \epsilon_{s,t} \cdot E_s = 30.93 \cdot ksi \qquad \qquad \text{tensile stress in reinforcement}$$

$$\varepsilon_{uhpc.c} \coloneqq \frac{-2 \cdot \theta \cdot c}{L_{dz}} = -1147 \cdot 10^{-6}$$
 compressive strain in UHPC

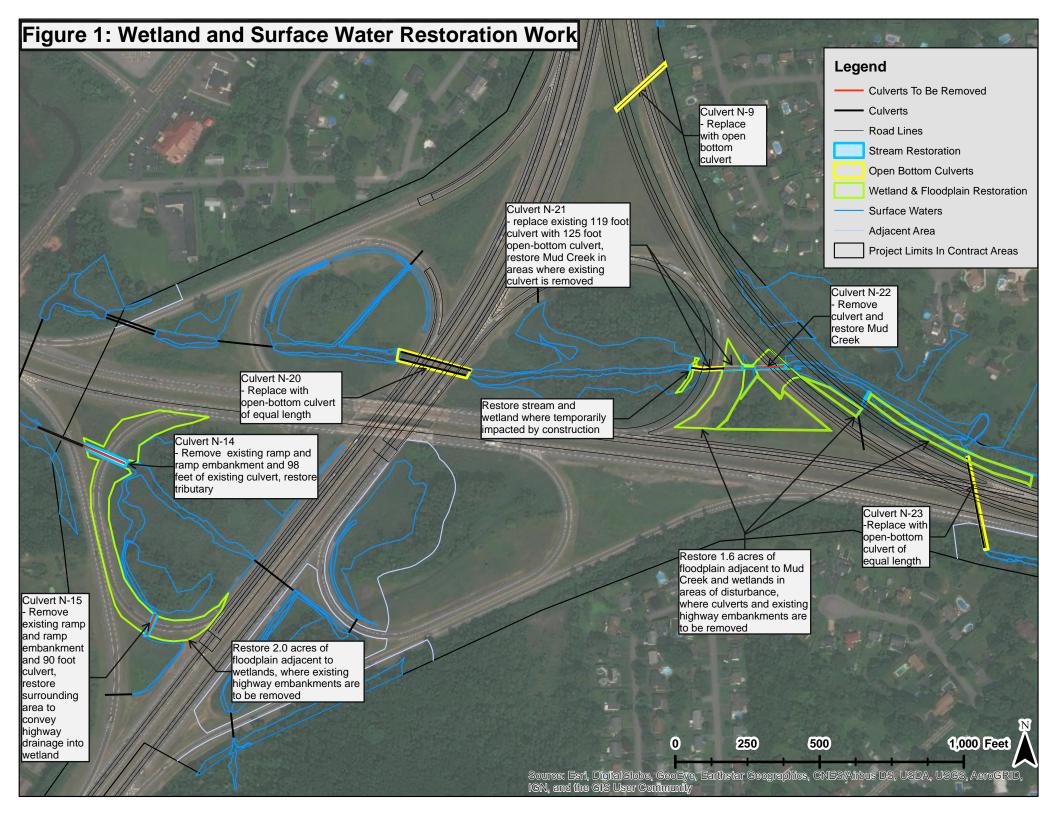
$$f_{uhpc.c} \coloneqq \epsilon_{uhpc.c} \cdot \mathrm{E}_c = -9.18 \cdot \mathrm{ksi} \qquad \qquad \text{compressive stress in UHPC}$$

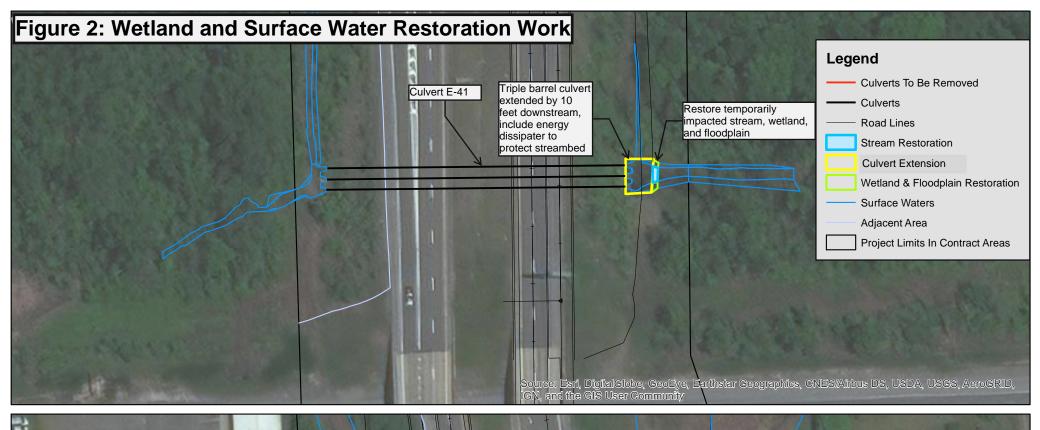
$$d_{gap.min} \coloneqq 2 \cdot \theta \cdot \left\lceil d_{bf} - \left( d_{uhpc} - c \right) \right\rceil = 1.29 \cdot in \qquad \text{minimum required girder end gap}$$

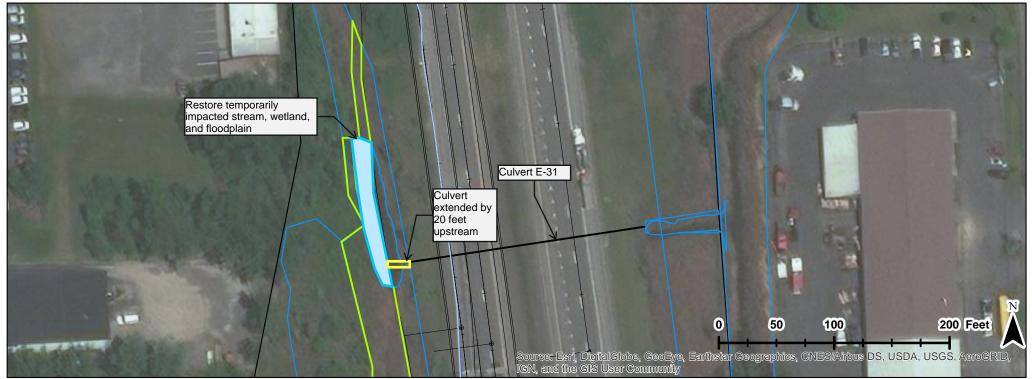
### **Analysis Results**

$$R = \begin{pmatrix} \text{"Analysis Criteria"} & \text{"Actual"} & \text{"Allowable"} & \text{"Design Ratio"} & \text{"Pass/Fail"} \\ \text{"Tensile Strain in UHPC } (\mu\epsilon)\text{"} & 3280.41 & 3500.00 & 1.07 & \text{"Pass"} \\ \text{"Stress in Reinforcement (ksi)"} & 30.93 & 60.00 & 1.94 & \text{"Pass"} \\ \text{"Compressive Stress in UHPC } (\mu\epsilon)\text{"} & -9.18 & -14.00 & 1.53 & \text{"Pass"} \\ \text{"Minimum Girder End Gap (in)"} & \text{"----"} & 1.29 & \text{"----"} & \text{"----"} \\ \end{pmatrix}$$

### **Restoration Plans**







### **Water Resource Mitigation**

General Ecology - Culverts	Action Summary	NYSDOT Standard Specifications	Description of Work
Outfall-N-1	Pipe replacement	Section 206 Trench, Culvert, and Structure Excavation	A highway drainage pipe (ex. 24" RCP), Outfall-N-1, that currently outlets into dry swale densely populated with common reed (in triangular interchange area north of Mud Creek/Wetland 10L, where an infiltration or detention basin is proposed) would be reconstructed and extended during HWY ROW reconstruction.
Outfall N-2	Pipe replacement	Section 206 Trench, Culvert, and Structure Excavation, may need Special spec 555.10000006 Abandon Existing Culvert	A highway drainage pipe (ex. 36" CMP), Outfall-N-2, that currently outlets to a steep wet-weather-flow tributary to Mud Creek would be relocated, requiring the construction of a new drainage pipe. There is erosion downstream of the existing outfall; the Design-Builder shall conduct a H&H analysis to ensure no erosion will occur downstream of the new drainage pipe and/or install outfall protection, an energy dissipator, and/or possibly lightly reinforce the ex channel downstream of the outfall. Coordination with the Geotechnical Consultant is recommended.
Culvert E-41	Culvert extension	Section 206 Trench, Culvert, and Structure Excavation, Special spec 553.010001 Coffer Dam	Design-Builder shall extend the existing triple barrel culvert structure 10 feet downstream into the unnamed tributary to North Branch Ley Creek, creating 134 linear feet of additional culvert and reducing the creek length to 40 linear feet, and reduce the surface water area to 400 square feet. The extended culvert outfall shall include an energy dissipator or similar to protect the streambed downstream of the culvert from erosion. NYSDEC specifies that the width of the structure shall be 1.25 times the normal width of the streambed. The overall culvert capacity should be able to accommodate expected high flows.  There is a special spec for extension of a CMP culvert with a paved invert; this could be potentially be modified for this culvert (603.07911806)
Culvert N-6	Replace with Open Bottom Culvert	Section 206 Trench, Culvert, and Structure Excavation, Special spec 553.010001 Coffer Dam, Section 620 Bank and Channel Protection	Design-Builder shall extend culvert by 21 feet to connect with the existing wetland; at minimum, the culverts must have a width at bankfull (1.25 x Bankfull width) and would be embedded at least 20 percent at the inlet
Culvert N-8	Culvert extension	Section 206 Trench, Culvert, and Structure Excavation, Special spec 553.010001 Coffer Dam, Section 620 Bank and Channel Protection	The Design-Builder shall extend the culvert by 64 feet to accommodate the new HWY ROW and safely convey the South Branch of Pine Grove Brook; at minimum, the culverts must have a width at bankfull (1.25 x Bankfull width) and would be embedded at least 20 percent at the inlet
Culvert N-9	Replace with Open Bottom Culvert	Section 206 Trench, Culvert, and Structure Excavation	The Design-Builder shall replace the existing culvert with an open bottom culvert, and extend the length by 75 feet into the triangular interchange area to accommodate the new highway geometry
Culvert N-14	Demolish ramp, ramp embankment, and 98 feet of existing culvert	Section 206 Trench, Culvert, and Structure Excavation, Special spec 555.10000006 Abandon Existing Culvert	The Design-Builder shall remove the existing ramp and culvert and grade the areas in order to implement the Restoration Plan. Culvert N-14 is currently 234 linear feet, 98 linear feet of which would be removed from the demolition area (the remainder of the pipe is needed to maintain drainage patterns under the remaining HWY ROW ramp.)
Culvert N-15	Demolish ramp, ramp embankment, and existing 90 foot Culvert	Section 206 Trench, Culvert, and Structure Excavation, Special spec 555.10000006 Abandon Existing Culvert	The Design-Builder shall remove the existing ramp and 80 foot long culvert and grade the areas in order to implement the Restoration Plan.
Culvert N-20	Replace with Open Bottom Culvert	Section 206 Trench, Culvert, and Structure Excavation, Special spec 553.010001 Coffer Dam	The Design-Builder shall replace the existing culvert with an open bottom culvert. At minimum, the culvert must have a width at bankfull (1.25 x Bankfull width) and would be embedded at least 20 percent at the inlet. Design-Builder shall use H&H modeling to ensure sufficient capacity for bankfull storm event and flood events. Current culvert sizes may be too small. Inlets and outlets need to be embedded in the embankment and protected with riprap to prevent scour - H&H modeling will help determine erosive forces and extent of protection needed. Any area disturbed during construction shall be stabilized after.
Culvert N-21	Replace with Open Bottom Culvert, further downstream from original culvert, to accommodate new ROW geometry	Section 206 Trench, Culvert, and Structure Excavation, Special spec 553.010001 Coffer Dam	The Design-Builder shall replace the existing culvert with an open bottom culvert. At minimum, the culvert must have a width at bankfull (1.25 x Bankfull width) and would be embedded at least 20 percent at the inlet. The Design-Builder shall shift the Culvert N-21 downstream. The open bottom culvert would be 6 feet longer than the existing culvert. It would result in a decrease in length to the section of Mud Creek between N-21 and N-20, which is currently 839 linear feet (0.40 acres) and would be reduced to 795 linear feet (0.38 acres). This would result in a 44 linear foot decrease in length, or 0.02 acres of surface water.
Culvert N-23 and N-21	Bridge and retaining wall construction	Section 206 Trench, Culvert, and Structure Excavation, Special spec 553.010001 Coffer Dam	The Design-Builder shall construct a new bridge between the existing N-23 and N-21 culverts. The Design-Builder shall avoid bridge construction in any portions of Mud Creek and shall avoid raising the floodplain where possible.
Culvert N-23	Replace with Open Bottom Culvert	Section 206 Trench, Culvert, and Structure Excavation, Special spec 553.010001 Coffer Dam	The Design-Builder shall replace the existing culvert with an open bottom culvert of equal length. At minimum, the culvert must have a width at bankfull (1.25 x Bankfull width) and would be embedded at least 20 percent at the inlet. Design-Builder shall size culverts using H&H modeling to ensure sufficient capacity for bankfull storm event and flood events. Current culvert sizes may be too small. Inlets and outlets need to be embedded in the embankment and protected with riprap to prevent scour - H&H modeling will help determine erosive forces and extent of protection needed. Any area disturbed during construction shall be stabilized after.

Floodplain Restoration associated with removal of existing ramp, ramp embankment, and culverts N-14 and N-15	Restore 2.0 acres of floodplain associated with a tributary to Mud Creek associated with Culverts N-14 and N-15)	Section 610 - Ground Vegetation - Preparation, Establishment and Management (All subsections except 1.02, 1.03, 1.12, 1.13, 2.03, 2.05, 2.12, and 2.13); Section 611 - Planting, Transplanting And Post Planting Care; Section 713 Landscape Development Materials	The Design-Builder shall develop a Restoration Plan for wetland, channel, and floodplain areas that would be temporarily disturbed during construction and/or for the channel and floodplain areas that have been identified for restoration. One section of the Restoration Plan shall include the restoration of the floodplain. At minimum, 2.0 acres of floodplain would be restored. The Design-Builder shall identify a reference floodplain and justification for its use and present it to NYSDEC for review and approval. One of the goals and objectives will be to grade the land to fully reconnect the adjacent wetland. The Restoration Plan shall establish goals and objectives as part of the Restoration Plan for review and approval by NYSDEC. At minimum, the entire restoration area shall be seeded at a rate specified by 610-3.04. Plugs and vines and groundcovers shall be planted at a rate of 1 plant per 4 sq. feet. Trees and shrubs at a rate of no less than 350 bare root plants per acre. At minimum, herbaceous plugs shall be spaced no more than 18" apart. The Design-Builder shall develop a Monitoring and Adaptive Management Plan as part of the development of the Restoration Plan. The Design-Builder shall follow all permit conditions outlined in the NYSDEC/USACE permits, including the Performance Standards established as part of the Monitoring and Adaptive Management Plan. At minimum, the Performance Standards shall stipulate that plant survival shall not be less than 85% after the five-year monitoring period. Invasive species (specifically Phragmites australis) shall not exceed 5% at the end of the five-year monitoring period.
Culvert N-22	Remove culvert and restore 250 feet of Mud Creek and associated wetland	project)	The Design-Builder shall develop a Restoration Plan for wetland, channel, and floodplain areas that would be temporarily disturbed during construction and/or for the channel and floodplain areas that have been identified for restoration. One section of the Restoration Plan will include the channel and riparian buffer restoration of Mud Creek. Mud Creek channel restoration will mimic an upstream portion of Mud Creek. The Design-Builder shall select a reference condition and justification for its use as part of its development of the Restoration Plan and the Restoration Plans goals and objectives. Only native species, including native aquatic plants, shall be used in the restoration plan. The Design-Builder shall submit the restoration plan to NYSDEC for approval. The vegetated buffer shall have a minimum width of 50' where space is limited and shall follow the Three Zone Concept outlined in NYSDEC Riparian Buffers guidance (https://www.dec.ny.gov/chemical/106345.html). Where possible, the vegetated buffer shall be 100' wide to meet NYSDEC's riparian corridor guidance. The Design-Builder shall develop a Monitoring and Adaptive Management Plan as part of the development of the Restoration Plan. The Design-Builder shall follow all permit conditions outlined in the NYSDEC/USACE permits, including the Performance Standards established as part of the restoration monitoring plan. At minimum, the Performance Standards shall stipulate that plant survival shall not be lower than 85% after the five year monitoring period and shall not be lower than 85% for three or more consecutive years within the five year period. Invasive species (specifically Phragmites australis) shall not exceed 5% at the end of the five year monitoring period.
Floodplain restoration associated with removal of Culverts N-21 and N-22 and associated existing highway embankments	Restore 1.6 acres of floodplain adjacent to mainstem of Mud Creek	Section 610 - Ground Vegetation - Preparation, Establishment and Management (All subsections except 1.02, 1.03, 1.12, 1.13, 2.03, 2.05, 2.12, and 2.13); Section 611 - Planting, Transplanting And Post Planting Care; Section 713 Landscape Development Materials	The Design-Builder shall develop a Restoration Plan for wetland, channel, and floodplain areas that would be temporarily disturbed during construction and/or for the channel and floodplain areas that have been identified for restoration. One section of the Restoration Plan shall include the restoration of the floodplain. At minimum, 1.6 acres of floodplain would be restored. The Design-Builder shall identify a reference floodplain and present the reference floodplain to NYSDEC for review and approval. One of the goals and objectives will to grade the land to fully reconnect the adjacent wetland. The Restoration Plan shall establish goals and objectives as part of the Restoration Plan for review and approval by NYSDEC. At minimum, the entire restoration area shall be seeded at a rate specified by 610-3.04. Plugs and vines and groundcovers shall be planted at a rate of 1 plant per 4 sq. feet. Trees and shrubs at a rate of no less than 350 bare root plants per acre. At minimum, herbaceous plugs shall be spaced no more than 18" apart. The Design-Builder shall develop a Monitoring and Adaptive Management Plan as part of the development of the Restoration Plan. The Design-Builder shall follow all permit conditions outlined in the NYSDEC/USACE permits, including the Performance Standards established as part of the Monitoring and Adaptive Management Plan. At minimum, the Performance Standards shall stipulate that plant survival shall not be lower than 85% after the five year monitoring period and shall not be lower than 85% for three or more consecutive years within the five year period. Invasive species (specifically Phragmites australis) shall not exceed 5% at the end of the five year monitoring period.

<b>Hazardous Was</b>	te Contaminated	Materials A	Additional	Information
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95 Perry Street Suite 300

120 East Washington Street Suite 414 Syracuse, NY 13202

325 Gold Street Suite 701 Brooklyn, NY 11201



#### Memorandum

To: File

From: Justin Kellogg, M.S., QEP, Senior Environmental Engineer

Date: May 12, 2022

Subject: I-81 VIADUCT PROJECT - PHASE 1, CONTRACT 1

PIN 3501.90. Contract D900054

Hazardous Waste/Contaminated Materials Additional Information for Contract 1 RFP

Watts Project Number 13092

The purpose of this Memorandum is to identify additional information that would assist in the bidding process for the I-81 Viaduct Project - Phase 1, Contract 1 Request for Proposal (RFP).

Hazardous waste/contaminated materials assessments have identified those properties where either contaminated soils and groundwater or underground storage tanks primarily used for petroleum sales are suspected to be present. Information describing the specific sites of concern is found in the Hazardous Waste/Contaminated Materials Screening Assessment Report dated February 2020 and the stand-alone Phase I Environmental Site Assessment for Proposed Noise Walls 16 A/B Memorandum dated May 17, 2021. The aforementioned documents were prepared for a larger project footprint than the Contract 1 project limits. This Memorandum identifies the sites of potential environmental concern that are found within or adjacent to the Contract 1 project limits. Please refer to the abovementioned documents for additional information on the sites of potential environmental concern.

The 18 sites in the table below are in the vicinity of the Design-Build Contract 1 project corridor and were identified as potentially contaminated; however, only one site (3.2.5, CSX: DeWitt Railroad Yard - shown in bold below) is considered to have a high probability of contamination being present.

The 17 other sites in the table below are considered to have a low probability of contamination and are called out as an advisory that the Design-Builder should be on the lookout and aware of the potential for contamination in the vicinity of these sites.

Site ID #	Property Name and Address	Current or Former Use	Potential Environmental Concerns	Notes
3.1.1	I-81: Sutton Dr - I-481 Interchange & I- 481: I-81 Interchange - Northern Blvd	Roadway Corridor	Petroleum Contamination	Roadway corridor, spills are too scattered to identify them specifically.

### Watts Architects &Engineers

I-81 VIADUCT PROJECT - PHASE 1, CONTRACT 1 PIN 3501.90, Contract D900054 Hazardous Waste/Contaminated Materials Additional Information for Contract 1 RFP Watts Project Number 13092

Site ID	Property Name and Address	Current or Former Use	Potential Environmental Concerns	Notes
3.1.2	Burdick Auto Dealer: 5947 Circle Dr	Automobile Related	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs	Noise barrier installation disturbance is within the ROW and close to highway. Contamination, if present, is likely off the ROW.
3.1.3	Burdick Auto Dealer: 5857-5927 Circle Dr	Automobile Related, USTs	Petroleum Contamination, USTs	Soil disturbance is within the highway ROW and likely tank/spill sites are far from the ROW.
3.1.4	National Grid: 7496 Round Pond Rd	Natural Gas Fueling Station	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs	Disturbed area is within the ROW. Past spills were off of the highway ROW, small and mostly cleaned/closed.
3.1.5	Swift Transportation: 7470 Round Pond Rd	Automobile Related, USTs	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs	Soil disturbance is within the highway ROW and likely tank/spill sites are far from the ROW.
3.1.6	Monroe Tractor & Implement: 7300 Eastman Rd	Automobile Related	Petroleum Contamination	Soil disturbance is within the highway ROW and likely spill sites are far from the ROW.
3.1.7	Lan-Co Companies: 7330 Eastman Rd	Solid Waste Landfill	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs	Soil disturbance is within the highway ROW and likely spill sites are far from the ROW.
3.2.1	I-481: I-90 - Route 592 Interchange	Roadway Corridor	Chemical/Solvent Contamination, Petroleum Contamination	Roadway corridor, spills are too scattered to identify them specifically.
3.2.2	Inficon Inc: 2 Technology Pl	Manufacturing Facility and USTs	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs	Soil disturbance is within the highway ROW and likely tank/spill sites are far from the ROW.
3.2.3	Joy Process Mechanical 6747 Benedict Rd	Manufacturing Facility	Chemical/Solvent Contamination	Edge of disturbance area, but no ROW takes and started in 1986 (farmed prior) and no tanks.
3.2.4	Ultra Dairy: 6750 Benedict Rd	Manufacturing Facility and USTs	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs	Edge of disturbance area, but no ROW takes and tanks are ASTs, few, and somewhat recent.

**Watts** 

### Watts Architects &Engineers

I-81 VIADUCT PROJECT - PHASE 1, CONTRACT 1
PIN 3501.90, Contract D900054
Hazardous Waste/Contaminated Materials Additional Information for Contract 1 RFP
Watts Project Number 13092

Site ID	Property Name and Address	Current or Former Use	Potential Environmental Concerns	Notes
3.2.5	CSX: DeWitt Railroad Yard	Railroad	Chemical/Solvent Contamination	Bridge will be renovated, recommend investigative soil borings near piers and abutment excavations (to depth of excavation). Contaminated soil assumed to be encountered.
3.2.6	Penske Truck Rental: 6755-6773 Manlius Center Rd	Automobile Related, USTs	Petroleum Contamination, Abandoned USTs	Edge of disturbance area, but tanks were likely near the building, and I-481 is elevated (for the bridge crossings) in comparison to this site.
3.2.7	84 Lumber: 6801 Manlius Center Rd	Lumber Yard and USTs	Chemical/Solvent Contamination, Petroleum Contamination, Abandoned USTs	Edge of disturbance area, but no ROW takes, there is a substantial drainage ditch between the property and roadway, and I-481 is quite elevated (for the bridge crossings) in comparison to this site.
3.2.8	Allied Spring & Services Inc: 6800 Manlius Center Rd	Automobile Related, USTs	Chemical/Solvent Contamination, Petroleum Contamination	No ROW takes and construction not adjacent.
3.2.9	B&C Self- Storage: 5991 Drott Dr	Automobile Related, USTs	Petroleum Contamination, Abandoned USTs	Construction is within ROW and not adjacent to this site. Contamination, if present, is likely off the ROW.
А	Residential Property 434 Garden Center Drive	Automobile Related	Petroleum Contamination, Abandoned USTs	Construction of noise barrier is on the embankment above grade from house. Contamination, if present, is likely off the ROW.
В	Mattydale Shopping Plaza 2803 Brewerton Rd	Automobile Related	Petroleum Contamination, Abandoned USTs	Construction of noise barrier on embankment above grade from and somewhat far from the shopping plaza. Contamination, if present, is likely off the ROW.

### Notes:

- 1) Site ID #s 3.1.1 through 3.2.9 in the table above refer to the sites identified within the Hazardous Waste/Contaminated Materials Screening Assessment Report dated February 2020.
- 2) Site ID #s A and B in the table above refer to the sites identified within the Phase I Environmental Site Assessment for Proposed Noise Walls 16 A/B Memorandum dated May 17, 2021.
- 3) Bold in the table above highlights the CSX: Dewitt Railroad Yard where it is assumed that contaminated soil will be encountered.

Non-Standard Feature Justif	cations and D	Design (	Criteria	<b>Tables</b>
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## Non-Standard and Non-Conforming Features Recommended to be Retained

### New York State Department of Transportation

### Non-Standard Features to be Retained

The Non-Standard Features recommended to be retained under PIN 3501.90 are listed in **Table 1**, followed by the Non-Standard Feature Justification form.

Table 1 Non-Standard Features Recommended to be Retained

Location	Design Element	Design Criteria	Proposed Design	NSF Justification Form
Southbound I-81 (at North Interchange)	HSSD	730 ft.	542/703 ft.	Fig 1
Southbound I-81 at existing I-481 Interchange 4	Horizontal Curve	1,815 ft.	1,235 ft.	Fig 2



# Exhibit 2-15

**Nonstandard Feature Justification** Rev. 04/24/17 PIN: 3501.90 Route No. and Name: I-81 southbound at North Interchange National Network/Qualifying Highway Access Highway Project Type: Reconstruction Functional Class: Urban Principal Arterial - Interstate Design Classification (AASHTO Class): Interstate - Urban ADT: 13,800 % Trucks: 12.7% Terrain: Rolling 1. Description of Nonstandard Feature Type of Feature: Stopping Sight Distance (Horizontal) Location: STA H8 153+00 TO STA H8 166+50 (SeeAttached Figure) Latitude and Longitude (Linear Feature) FROM Lat: 43.146512 Long: -76.109914 TO Lat: 43.140500 Long: -76.103513 Latitude and Longitude (Point Feature) Lat: Long: Standard Value: 730 ft Design Speed: 70 mph N/A - New Construction Existing Value: N/A New Construction Recommended Speed - Existing: Recommended Speed - Proposed: 55 mph Proposed Value: 542 ft (Left Lane) 703 ft (65 mph) (See note 1) 2. Accident Analysis Current Accident Rate<sup>1</sup>: N/A acc/mvm acc/mev Statewide Accident Rate: 1.08 acc/mvm acc/mev O No From N/A to N/A Is the Nonstandard Feature a contributing factor? Yes Anticipated accident rates, severity, and costs: N/A - New Construction 3. Cost Estimates Cost to fully meet standards: \$8.7 Million (see note 2) Cost(s) for incremental improvements: \$4.5 Million (see note 3) 4. Mitigation e.g., increased superelevation and speed change lane length for a non-standard ramp radius The left side shoulder will be constructed using a width of 12', instead of the minimum 4', on the curve/bridge to maximize sight distance around the bridge barrier. The additional shoulder width also serves as extra space for any evasive maneuvering around obstructions in the left lane. Highway guiderail to be box beam or cable to avoid sight line restrictions other than at bridge. R8-7 signs (Emergency Stopping Only) will be used on the bridge to discourage any voluntary stopping on the bridge that may create a hazard. 5. Compatibility with Adjacent Segments and Future Plans Proposed configuration is compatible with adjacent segments. There are no future plans to modify adjacent segments 6. Other Factors e.g., social, economic, and environmental See note 4 on Nonstandard Feature Justification attachment.

#### 7. Proposed Treatment (i.e., recommendation)

Provide non-standard stopping sight distance with a 12' inside (left) shoulder. Provide highway guiderail that will not cause sight line restrictions other than at the bridge.

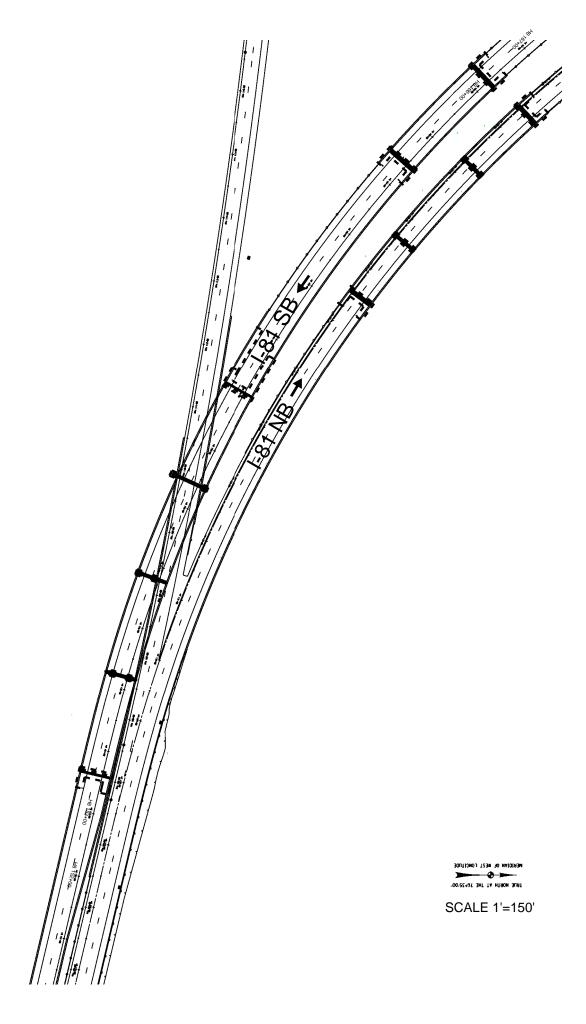
Use accidents per million vehicle miles (acc/mvm) for linear highway segments; use accidents per million entering vehicles (acc/meh) for intersections.

### Nonstandard Feature Justification

Southbound I-81 (at North Interchange) Refer to Fig.1 (Attachment)

- 1. For the inside lane, the typical 4-foot shoulder width would provide a HSSD of 403 feet. Implementation of the incremental improvement, (widening shoulder to 12 feet), would provide an HSSD of 542 feet achieving approximately 74% of the design criteria. For the outside lane, the typical 4-foot shoulder width would provide a HSSD of 600. feet. Implementation of the incremental improvement (widening shoulder to 12 feet), would provide a HSSD of 703 feet achieving 96% of the design criteria.
- 2. The proposed design meets all other design standards except for HSSD at the bridge location (due to bridge barrier). One Alternative evaluation to meet HSSD criteria was to over widen the shoulder from a standard of 10 feet to 29 feet. An estimated \$8.7 million construction cost is based on further widening of bridge shoulder from 12 feet to 27 feet and tapering the approach and trailing shoulders. Another option to fully meet standards is described in note 4.
- 3. An incremental improvement of over widening the shoulder to 12 feet was also considered and adopted. An estimated \$ 4.5 million construction cost is based on widening the bridge shoulder from 4-foot standard to 12 feet and tapering the approach and trailing shoulder. See Attached Figure.
- 4. Trucks with a higher sightline, which compose of 12.7% of total traffic, will not be subjected to the restricted sight distance since they will be able to see over the barrier. Providing standard stopping sight distance would require a 27' inside (left) shoulder on the bridges using the proposed curve radius. This 27' wide shoulder may be mistaken for an additional travel lane and increase the risk of additional accidents. Flattening the radius to accommodate the required sight distance using a 12' shoulder would create severe impacts in the northeast quadrant of the interchange. This would require acquisition of 20+ acres of property and demolition of 30+ residences in the Brigadier Drive neighborhood and was determined infeasible.

Fig. 1

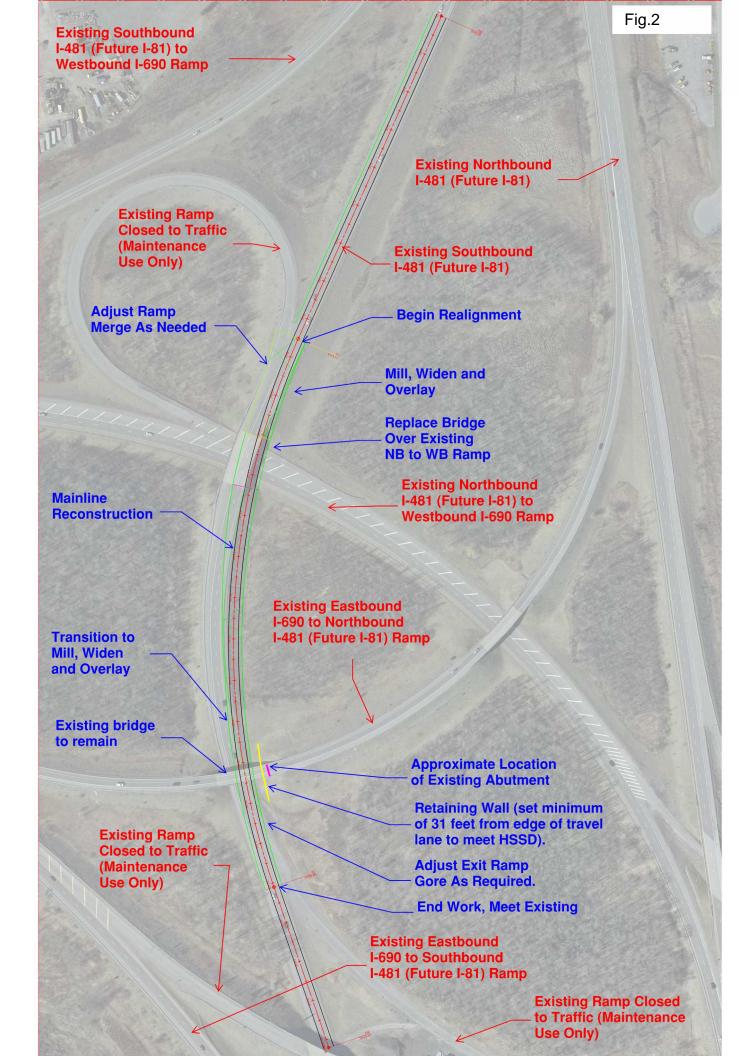




# Exhibit 2-15 Nonstandard Feature Justification

					Rev. 04/24/17	
PIN: 3501.90	Route No. and Name: Southbound I-481 (Future I-81) at Interchange 4					
Project Type: Reconstruction		✓ National Network/C	Qualifying Highway	Access Highwa	у	
Functional Class: Urban Principal Arterial - Interstate		Design Classification (AASH	TO Class): Interstate	-Urban		
ADT: 23,104 (southbound only)	% Trucks: 6%	NHS	Terrain: Rolling			
1. Description of Nonstandard Feature						
Type of Feature: Horizontal Curve Radius	\$					
Location: RM 481I 33012159 TO RM 4	181I 33012063 (See Attached Figure)					
Latitude and Longitude (Linear Feature) FRO	M Lat: 43.053576 Long: -76	6.054176 то	Lat: 43.057175	Long: -76.05	53809	
Latitude and Longitude (Point Feature) Lat:	Long:					
Standard Value: 1815 ft @ 8% superelev	/ation	Design Speed: 70 mph				
Existing Value: 1235 ft		Recommended Speed - Exis	sting: 55 mph			
Proposed Value: 1235 ft @ existing supe	relevation	Recommended Speed - Pro	pposed: 55 mph			
2. Accident Analysis						
Current Accident Rate <sup>1</sup> : 1.26	acc/mvm acc/mev	Statewide Accident Rate:	1.14	cc/mvm acc/r	mev	
From 7/1/2016 to 6	/30/2019	Is the Nonstandard Feature	a contributing factor?	Yes   No		
1.There were a total of 10 crashes at t	his location for the 3-year period, of whi:	ich 6 crashes were poter	itially related to the no	on-standard feature.	. See note 1	
3. Cost Estimates						
Cost to fully meet standards: \$ 6.2 Million	n (see note 2)	Design Speed: 70 mph Recommended Speed - Existing: 55 mph Recommended Speed - Proposed: 55 mph  Statewide Accident Rate: 1.14				
4. Mitigation						
e.g., increased superelevation and speed change Curve warning signs will be placed in						
5. Compatibility with Adjacent Segments a	nd Future Plans					
No future plans for adjacent segments	s of this ramp.					
6. Other Factors						
	uire approximately 1,400 LF of mainline estimated safety benefit. See notes 2 and		s a retaining wall (see	attached figure). T	he cost of	
7. Proposed Treatment (i.e., recommendation	ion)					
Propose retention of existing non-stan	ndard curve radii, add curve warning sigr	ns and continue NYSDO	T monitoring.			

<sup>1</sup> Use accidents per million vehicle miles (acc/mvm) for linear highway segments; use accidents per million entering vehicles (acc/meh) for intersections.



### Nonstandard Feature Justification

Horizontal Curve – I-481 (Future I-81) at Existing I-481 Interchange 4
Refer to Fig.2
(Attachment)

- 1. The existing crash rate is slightly higher than the statewide average rate at this location. For the 3-year period, there were a total of 10 crashes, 6 of which are potentially related to the non-standard horizontal curve along southbound I-481. A cluster of crashes occurred on the horizontal curve in the approximate center of the existing I-481 Interchange 4. The majority of these crashes are fixed object crashes resulting from a loss of control in adverse weather conditions. A pavement friction evaluation was conducted in accordance with the Department's Comprehensive Pavement Design Manual. The measured FN(40) values were between 37.3 and 59.3, which are above 32 (the friction value utilized in the stopping sight distance criteria for wet pavements). With measured friction values higher than 32, it appears skid resistance is not contributing to the crash history at this location.
- 2. Modification of the horizontal curve to meet current design standards would require approximately 1,400 LF of mainline reconstruction as well as a retaining wall (see attached figure). The cost of the reconstruction would exceed the estimated safety benefit.
- 3. An incremental improvement was evaluated, which involved adjusting the superelevation to the maximum 8%, which would increase the allowable speed to approximately 60 mph vs the 70 mph Design Speed. However, the existing mainline passes under an existing ramp bridge with minimum vertical clearance, so it is not possible to adjust the superelevation without either replacing the existing bridge or introducing a non-standard vertical clearance. In addition, adjusting the superelevation would also affect the overpass bridge on the north end of the curve. The shim depth required to obtain an 8% superelevation would likely cause the load carrying capacity of the bridge to be exceeded, resulting in the need to replace or heavily modify a second bridge. Both of the potentially impacted existing bridges are in good condition with good remaining service life.

### Non-Conforming Feature Table and Justification

The Non-Conforming Freeway Features recommended to be retained are listed in **Table 2**. A non-conforming feature is a design element that does not meet other recommended design parameters established by NYSDOT and AASHTO (such as control of access, ramp spacing, etc.), that are in addition to the ten controlling criteria as designated by FHWA. Refer to FDR/FEIS Appendix A-3 for more information regarding the justification for retention of these non-conforming features.

Table 2 Non-Conforming Freeway Features Recommended to be Retained (1)

Location	Design Element	Recommended Design Standard (2)	Proposed Design Standard	Justification
NB BL 81, between the on-ramp from SB NY-481 and off-ramp to NB NY-481	LOS (weave) (3)	LOS D or better	LOS E (2056 PM)	See below

#### Notes

- 1) When design advances, further refinements would attempt to further improve this feature.
- 2) Refer to Other Design Parameters in Tables 7-10
- 3) LOS = Level of Service.

*Justification for retaining non-conforming feature:* 

The LOS E condition occurs in the horizon year (2056) and in the opening year (2026). The LOS is associated with the weaving segment between the SB NY-481 on ramp to BL 81 and the NB off-ramp to NB NY-481, where traffic merging into northbound BL 81 traffic is mixing with northbound BL 81 traffic exiting to northbound NY-481 (19) and would only apply to the PM peak hour. Travel speeds would not drop significantly below posted speeds. Potential mitigation options may include eliminating the northbound entrance ramp, reconstructing the northbound off-ramp as a fly over ramp, or other ramp configurations that may mitigate the weaving segment. It is anticipated that all reconfiguration options would increase ROW impacts and likely increase wetland impacts.

# Design Criteria Tables

#### TABLE 1

DESIGN CRITERIA – NEW I-81 (FORMER I-481)						
PIN:		3501.90		NHS (Y/N):	Yes	
Ro	ute No. & Name:	481)		Functional Classification:	Urban Principal Arterial – Other Freeway/Expressway Freeway/Expressway	
Pre	oject Type:			Design Classification:		
%	Trucks:	6%		Terrain:	Rolling  Qualifying Highway	
Αľ	OT (2050):	56,800		Truck Access/Qualifying:		
	DESIGN ELEMENT	STANDARD CRITERIA	EXISTING CONDITION	PROPOSED CONDITION	REFERENCE	
1	Design Speed (Min.)	70 mph <sup>(1)</sup>	Posted 65 mph	70 mph	HDM § 2.7.1.1.A	
2	Travel Lane Width (Min.)	12 ft.	12 ft.	12 ft.	HDM § 2.7.1.1.B	
3	Shoulder Width (Min.) Right Left (2-lanes per direction) Left (3-lanes per direction)	10 ft. 4 ft. 10 ft.	2.5 ft.* (3) 2.5 ft.* (3) 5 ft. * (3)	2.5 ft.* (3,4) 2.5 ft.* (3,4) 5 ft.* (3,4,5)	HDM § 2.7.1.1.C Exhibit 2-2	
4	Grade (Max.)	4%	5.0%*	4%	HDM § 2.7.1.1.G Exhibit 2-2,	
5	Horizontal Curve Radius (Min. Radius)	1815 ft. @ 8%	1572 ft.*	1912 ft.	HDM § 2.7.1.1.D Exhibit 2-2	
6	Superelevation	8%	4.1% *	8%	HDM § 2.7.1.1.E	
7	Stopping Sight Distance (Min.)	730 ft.	389 ft.*	524 ft. * <sup>(6)</sup>	HDM § 2.7.1.1.F Exhibit 2-2	
8	Vertical Clearance	16 ft. Min. <sup>(7)</sup> 16.5 ft. Desired	16 ft. (Min.)	16.5 ft. Min. ( <sup>7</sup> )	HDM § 2.7.1.1.I / NYSDOT Brg. Man § 2.3.1, Table 2-2	
9	Cross Slope (Pavement) (Min.) / (Max.)	1.5% min, 2.5% max	1.5% / 2.0%	1.5% min, 2.5% max	HDM § 2.7.1.1.H	
10	Design Loading Structural Capacity	NYSDOT Bridge Manual, Section 2.5	H20	NYSDOT Bridge Manual, Section 2.5	NYSDOT Bridge Manual, Section 2.5	

### \* Nonstandard feature

#### Notes:

- 1) The Regional Traffic Engineer has concurred that the use of a Design Speed of 70 mph is consistent with the anticipated off-peak 85th percentile speed within the range of functional class speeds for the terrain and volume.
- 2) Posted 55 mph between southern project limit and Rock Cut Road interchange on existing I-481, then posted 65 mph between Rock Cut Road interchange to northern project limit.
- 3) All shoulders meet the design standard except for the existing left and right shoulders on both the existing NB and SB I-481 bridge over Route 5/92 (see Non- Standard Feature Justification Forms).
- 4) On inside of horizontal curves, the proposed shoulder width varies to 12 feet maximum to meet Horizontal Stopping Sight Distance criteria.
- There is no qualifying 3-lane section in the South Study Area or in the East Study Area between I-690 and I-90 (the 3-lane sections between I-690 and I-90 are due to auxiliary lanes which are less than 1-mile long). There are qualifying 3-lane segments in the East Study Area (between Route 5/92 and Kinne Road) and in the North Study Area, where 10-foot median side shoulders are provided in accordance with the design criteria.
- 6) Proposed Horizontal Stopping Sight Distance is non-standard along two curves in the south interchange area and one curve in the north interchange area (See Non-Standard Feature Justification Forms). All other locations meet design criteria of 730 feet minimum.
- New I-81 is the designated 16-ft route. The minimum vertical clearance for sign structures and pedestrian bridges shall be 1-ft greater.

### TABLE 2

					TABLE 2	
	DESIGN CRITERIA – BL	81 and NY 481 AT NORTH	I INTERCHAN	GE		
PIN: Route No. & Name:		3501.90  BL 81 and NY-481 at North ern Interchange		NHS (Y/N):	Yes Urban Principal Arterial – Other Freeway/Expressway	
				Functional Classification:		
Pro	oject Type:	Reconstruction		Design Classification:	Freeway/Expressway Rolling Qualifying Highway	
%	Trucks:	6%		Terrain:		
AΓ	OT (2050):	56,800	]	Truck Access/Qualifying:		
	DESIGN ELEMENT	STANDARD CRITERIA	EXISTING CONDITION	PROPOSED CONDITION	REFERENCE	
1	Design Speed (Min.)	70 mph <sup>(1)</sup>	Posted 65 mph	70 mph	HDM § 2.7.1.1.A	
2	Travel Lane Width (Min.)	12 ft.	12 ft.	12 ft.	HDM § 2.7.1.1.B	
3	Shoulder Width (Min.) Right Left (2-lanes per direction) Left (3-lanes per direction)	10 ft. 4 ft. 10 ft.	10 ft. 4 ft. 4 ft. *	10 ft. <sup>(2)</sup> 4 ft. <sup>(2)</sup> 10 ft. <sup>(2)</sup>	HDM § 2.7.1.1.C Exhibit 2-2	
4	Grade (Max.)	4%	5.0%*	4%	HDM § 2.7.1.1.G Exhibit 2-2,	
5	Horizontal Curve Radius (Min. Radius)	1815 ft. @ 8%	1572 ft.*	2712 ft.	HDM § 2.7.1.1.D Exhibit 2-2	
6	Superelevation	8%	4.1% *	8%	HDM § 2.7.1.1.E	
7	Stopping Sight Distance (Min.)	730 ft.	> 730 ft.	> 730 ft.	HDM § 2.7.1.1.F Exhibit 2-2	
8	Vertical Clearance	16 ft. Min. <sup>(3, 4)</sup> 16.5 ft. Desired	16 ft. (Min.)	16.5 ft. Min. (3, 4)	HDM § 2.7.1.1.I / NYSDOT Brg. Man. § 2.3.1 Table 2-2	
9	Cross Slope (Pavement) (Min.) / (Max.)	1.5% min, 2.5% max	1.5% / 2.0%	1.5% min, 2.5% max	HDM § 2.7.1.1.H	
10	Design Loading Structural Capacity	NYSDOT Bridge Manual, Section 2.5	H20	NYSDOT Bridge Manual, Section 2.5	NYSDOT Bridge Manual, Section 2.5	

<sup>\*</sup> Nonstandard feature

#### Notes:

- The Regional Traffic Engineer has concurred that the use of a Design Speed of 70 mph is consistent with the anticipated off-peak 85th percentile speed within the range of functional class speeds for the terrain and volume.
- On inside of horizontal curves, the proposed shoulder width varies to 12 feet maximum to meet Horizontal Stopping Sight Distance criteria.
- 3) In addition to New I-81 being on the designated 16-ft clearance route, the section of BL 81, between I-90 and the northern limit (North Interchange) is also on the designated 16-ft clearance route.
- 4) The minimum vertical clearance for sign structures and pedestrian bridges shall be 1-ft greater.

### TABLE 3

					TABLE 3
	DESIGN CRITER	IA FOR DIAGONAL RAMPS			
PIN	Ň:	3501.90		NHS (Y/N):	Yes
Route No. & Name:		Interstate/Freeway Diagonal Ramps (1)		Functional Classification:	Urban Principal Arterial – Interstate or Other Freeway
Pro	ject Type:	Reconstruction		Design Classification:	Ramp (Diagonal
	Trucks:	Varies		Terrain:	Rolling
AD	T (2050):	Varies		Truck Access/Qualifying:	Qualifying Highwa
]	DESIGN ELEMENT	STANDARD CRITERIA	EXISTING CONDITION	PROPOSED CONDITION	REFERENCE
1	Design Speed (Min.)	30 mph (2)	30 mph	30 mph	HDM § 2.7.5.3.A
2	Travel Lane Width (Min.) <sup>(3, 4)</sup> Turn Lane	12 ft. (1 lane) R>1000 ft., Tangent 16 ft. (1 lane) R=200 ft-499 ft. 17 ft. (1 lane) R=150 ft-199 ft. 33 ft. (2 lane) R=150 ft-199 ft. 12 ft.	12 ft.	12 ft. (1 lane) R>1000 ft., Tangent 16 ft. (1 lane) R=200 ft-499 ft. 17 ft. (1 lane) R=150 ft-199 ft. 33 ft. (2 lane) R=150 ft-199 ft. 12 ft.	HDM § 2.7.5.3.B Exhibit 2.9.
3	Shoulder Width (Min.) Right Left 2 Lane Ramp	6 ft. (1 lane ramp) 4 ft. (1 lane ramp) Add 2 ft. for curb section	1ft & Varies*	6 ft. 4 ft. Add 2 ft. for curb section	HDM § 2.7.5.3.C Exhibit 2-10a
4	Grade (Max.)	7%	7%	7%	HDM § 2.7.5.3.G Exhibit 2-10
5	Horizontal Curve Radius (Min. Radius)	214 ft. @ 8%	57 ft. *	158 ft. * <sup>(5)</sup>	HDM § 2.7.5.3.D Exhibit 2-10
6	Superelevation	8%	3.8% *	8%	HDM § 2.7.5.3.E
7	Stopping Sight Distance (Min.)	200 ft.	160 ft. & Varies*	135 ft. *	HDM § 2.7.5.3.F Exhibit 2-10
8	Vertical Clearance	14 ft. Min. <sup>(6,7)</sup> 14.5 ft. Desired	14 ft. Min.	14.5 ft. Min. (6, 7)	HDM § 2.7.5.3.I / NYSDOT Brg. Man. § 2.3.1 Table 2-2
9	Cross Slope (Pavement) (Min.) / (Max.)	1.5% min, 2.5% max	1.5% / 2.0%	1.5% min, 2.5% max	HDM § 2.7.5.3.H
10	Design Loading Structural Capacity	NYSDOT Bridge Manual, Section 2.5	HS-20	NYSDOT Bridge Manual, Section 2.5	NYSDOT Bridge Manual, Section 2
11	Americans with Disabilities (ADA Compliance)	Comply with PROWAG and HDM Chapter 18 <sup>(8)</sup>	At Ramp Terminal	Complies with PROWAG and HDM Chapter 18 (8)	HDM § 2.7.5.3.K

### \* Nonstandard feature

- 1) Table applies to all interstate or freeway diagonal ramps where the mainline design speed= 60 mph or less.
- 2) The Regional Traffic Engineer has concurred that the use of a Design Speed of 30 mph is consistent with the anticipated off-peak 85th percentile speed within the range of functional class speeds for the terrain and volume.
- 3) Ramps to be designed with provision for passing a WB-67 stalled vehicle (Case IIC for one lane ramp or Case IIIC for two lane ramp).
- 4) Lane width based on deducting right and left shoulder widths from the Exhibit 2-9 Traveled Way Width, Case IIC, and applying the minimum Case I lane width. Per Exhibit 2-9, where the combined shoulder width is 4 ft. or wider, a 12-foot lane width may be used on tangents (radius greater than or equal to 1000 ft.).
- 5) Proposed Horizontal Curve Radius is non-standard along three ramp curves (See Non-Standard Feature Justification Forms. All other locations meet design criteria.
- 6) 16-ft clearance exemption. New I-81 is the designated 16-ft route.
- 7) The minimum vertical clearance for sign structures and pedestrian bridges shall be 1-ft greater.
- 8) At Ramp Terminal only.

### **TABLE 4**

	DESIGN CRITERIA	FOR DIAGONAL RAMPS	3		
PIN	V:	3501.90		NHS (Y/N):	Yes
Rot	ite No. & Name:	Name: Interstate Diagonal Ramps		Functional Classification:	Urban Principal Arterial – Interstate (2)
Pro	ject Type:	Reconstruction		Design Classification:	Ramp (Diagonal)
% 7	Trucks:	Varies		Terrain:	Rolling
ΑD	Т (2050):	Varies		Truck Access/Qualifying:	Qualifying Highway
	DESIGN ELEMENT	STANDARD CRITERIA	EXISTING CONDITION	PROPOSED CONDITION	REFERENCE
1	Design Speed (Min.)	40 mph <sup>(3)</sup>	40 mph	40 mph	HDM § 2.7.5.3.A
2	Travel Lane Width (Min.)	12 ft. (1 lane) R>1000 ft., Tangent (4)	12 ft.	12 ft. (1 lane) R>1000 ft., Tangent (4)	HDM § 2.7.5.3.B Exhibit 2.9
3	Shoulder Width (Min.) Right Left	6 ft. 4 ft.	1ft & Varies*	6 ft. 4 ft.	HDM § 2.7.5.3.C Exhibit 2-10a
4	Grade (Max.)	6%	6%	6%	HDM § 2.7.5.3.G Exhibit 2-10a
5	Horizontal Curve Radius (Min. Radius)	444 ft. @ 8%	> 444 ft.	444 ft. @ 8%	HDM § 2.7.5.3.D Exhibit 2-10a
6	Superelevation	8%	8% Max.	8%	HDM § 2.7.5.3.E
7	Stopping Sight Distance (Min.)	305 ft.	160 ft. & Varies*	305 ft.	HDM § 2.7.5.3.F Exhibit 2-10a
8	Vertical Clearance	16 ft. Min. (5,6) 16.5 ft. Desired	16 ft. Min.	16.5 ft. Min. (5, 6)	HDM § 2.7.5.3.I / NYSDOT Brg. Man. § 2.3.1 Table 2-2
9	Cross Slope (Pavement) (Min.) / (Max.)	1.5% min, 2.5% max	1.5% / 2.0%	1.5% min, 2.5% max	HDM § 2.7.5.3.H
10	Design Loading Structural Capacity	NYSDOT Bridge Manual, Section 2.5	HS-20	NYSDOT Bridge Manual, Section 2.5	NYSDOT Bridge Manual, Section 2.5
11	Americans with Disabilities (ADA Compliance)	Comply with PROWAG and HDM Chapter 18 (7)	At Ramp Terminal	Complies with PROWAG and HDM Chapter 18 (7)	HDM § 2.7.5.3.K

### \* Nonstandard feature

- 1) Table applies to all diagonal ramps where the mainline design speed= 70 mph.
- 2) Ramps to be designed with provision for passing a WB-67 stalled vehicle (Case IIC).
- The Regional Traffic Engineer has concurred that the use of a Design Speed of 40 mph is consistent with the anticipated off-peak 85th percentile speed within the range of functional class speeds for the terrain and volume.
- 4) Lane width based on deducting right and left shoulder widths from the Exhibit 2-9 Traveled Way Width, Case IIC, and applying the minimum Case I lane width. Per Exhibit 2-9, where the combined shoulder width is 4 ft. or wider, a 12-foot lane width may be used on tangents (radius greater than or equal to 1000 ft.).
- 5) New I-81 is the designated 16-ft route.
- 6) The minimum vertical clearance for sign structures and pedestrian bridges shall be 1-ft greater.
- 7) At Ramp Terminal only.

### TABLE 5

	DESIGN CRITERIA FOR SOUTH BAY ROAD						
PIN	· · · · · · · · · · · · · · · · · · ·	3501.90		NHS (Y/N):	No		
Rou	te No. & Name:	CR 208, South Bay Road, including BIN 1031720		Functional Classification:	Urban Minor Arterial		
Proj	ect Type:	Bridge Replacement		Design Classification:	Suburban Minor Arterial (3)		
% T	rucks:	3%		Terrain:	Rolling		
AD'	Г (2050):	14,000		Truck Access/Qualifying:	Neither		
	DESIGN ELEMENT	STANDARD CRITERIA	EXISTING CONDITION	PROPOSED CONDITION (4)	REFERENCE		
1	Design Speed (Min.)	50 mph (1)	Posted 45 mph	50 mph	HDM § 2.7.2.3.A		
2	Travel Lane Width	11 ft. min, 12 ft. desired	12 ft.	12 ft.	HDM § 2.7.2.3.B Exhibit 2-4		
3	Shoulder Width (Min.)	6 ft. Shoulder	South approach: 8 ft. Bridge: 4 ft. North approach: 6 ft.	8 ft. Shoulder	HDM § 2.7.2.3.C Exhibit 2-4		
4	Grade (Max.)	(7.0%)	2.36 %	2.36 % max	HDM § 2.7.2.3.G Exhibit 2-4		
5	Horizontal Curve Radius (Min. Radius)	557 ft. @ e = 6.0 %	>557 ft.	>557 ft.	HDM § 2.7.2.3.D Exhibit 2-4		
6	Superelevation	6.0% max.	N/A	6.0% max	HDM § 2.7.2.3.E Exhibit 2-1b		
7	Stopping Sight Distance (Min.)	387 ft.	>387 ft.	>387 ft.	HDM § 2.7.2.3.F Exhibit 2-4		
8	Vertical Clearance	16 ft. Min. (2) 16.5 ft. Desired	16.5 ft. Min.	16.5 ft. Min. (2)	HDM § 2.7.2.3.I NYSDOT Brg. Man. § 2.3.1		
9	Cross Slope (Pavement) (Min.) / (Max.)	1.5% min, 3.0% max	2%	1.5% min, 3.0% max	HDM § 2.7.2.3.H		
10	Design Loading Structural Capacity	NYSDOT Bridge Manual, Section 2.5	HS20	NYSDOT Bridge Manual, Section 2.5	NYSDOT Bridge Manual, Section 2.5		

### \* Nonstandard feature

- 1. The Regional Traffic Engineer has concurred that the use of a Design Speed of 50 mph is consistent with the anticipated off-peak 85th percentile speed within the range of functional class speeds for the terrain and volume.
- 2. The minimum vertical clearance for sign structures and pedestrian bridges shall be 1-ft greater.
  - Appropriate design criteria are determined by considering both functional classification (the character of the highway itself) and its context class (the character of the surrounding area in which the highway operates). For the segment of South Bay Road over I-81, the Design Classification has been determined as
- 3 Suburban Minor Arterial, which is based on both the functional classification and context classification of the roadway at this location and is consistent with the existing posted speed limit and proposed design speed. Reference HDM Chapter 2; sections 2.4.1 Functional Classification of Highways, and 2.4.2 Context Classes.
- 4 Suburban Arterial criteria; reference HDM Chapter 2, Exhibit 2-1b.

# Other Design Parameters

In addition to the 11 critical design elements described above, other design parameters established by NYSDOT and AASHTO that are typically used during the design of highway and bridge projects include the type of the design vehicle; the Level of Service (LOS) to be provided, which identifies the ease with which traffic can move along the roadways; the intensity of rainfall for design of storm drainage facilities; and the length of speed change lanes both during acceleration and deceleration. **Table 7** lists other highway design parameters used to develop the project design and **Table 8** lists the design vehicles used.

TABLE 7
Other Design Parameters: Highway or Feature

	Element	Criteria	Proposed Condition
1	Level of Service	<b>D</b> (min.) <sup>1</sup>	<b>D</b> (min.) <sup>1</sup>
1		C (desirable)	C (or better) desirable
	Storm Drainage System Design Storm		
	Interstate and Other Freeways	10 yr. <sup>(2)</sup>	10 yr. <sup>(2)</sup>
	Principal Arterials	10 yr. <sup>(2)</sup>	10 yr. <sup>(2)</sup>
	<ul> <li>Local Roads and Streets</li> </ul>	5 yr. <sup>(3)</sup>	5 yr. <sup>(3)</sup>
	Separated Storm Sewer Trunk Line	10 yr.	50 yr.
2	<u>Culvert Design Storm</u>		
	<ul> <li>Interstates, Arterials, Streets</li> </ul>	50 yr. <sup>(4)</sup>	50 yr. <sup>(4)</sup>
	Driveway Culverts	10 yr.	10 yr.
	Ditch Design Storm		
	<ul> <li>Interstate and Other Freeways</li> </ul>	25 yr. <sup>(5)</sup>	25 yr. <sup>(5)</sup>
	Principal Arterials	25 yr. <sup>(5)</sup>	25 yr. <sup>(5)</sup>
	Local Roads and Streets	10 yr. <sup>(5)</sup>	10 yr. <sup>(5)</sup>
3	Freeboard	2 ft. for the 50-year design flood	2 ft. for the 50-year design flood
	D. Civi		
	Ramp Criteria	Greater than or equal to minimum	Greater than or equal to minimum length in
	Deceleration Length	length in AASHTO Table 10-5.	AASHTO Table 10-5.
	Acceleration Length	Greater than or equal to minimum	Greater than or equal to minimum length in
4		length in AASHTO Table 10-3	AASHTO Table 10-3.
	Ramp Spacing (6)		
	<ul> <li>EN to EN or EX to EX</li> </ul>	Greater than or equal to 1000 ft.	Greater than or equal to 1000 ft.
	<ul> <li>EN to EX (System to Service)</li> </ul>	Greater than or equal to 2000 ft.	Greater than or equal to 2000 ft.
	■ EN to EX (Service to Service)	Greater than or equal to 1600 ft.	Greater than or equal to 1600 ft.
_	Bridge Roadway Width		
5	Lane and shoulder widths	Same as approach roadway	Same as approach roadway
	Haring at 1 Classica	carrie ac approved community	11
	Horizontal Clearance  Interstate and other Freeways		
	o without barrier	15 ft.	15 ft.
	o with barrier	Shld. width or 4 ft. Min.	Shld. width or 4 ft. Min.
	Interstate and Freeway Ramps	15 ft.	15 ft.
6	<ul><li>without barrier</li><li>with barrier</li></ul>	Shld. width or 4 ft. Min.	Shld. width or 4 ft. Min.
	Urban Arterials (curbed), Urban		
	Collectors (curbed) and Local Urban		
	Streets (curbed)	1.5 ft., 3 ft. at intersections	
	o without barrier	0 ft.	1.5 ft., 3 ft. at intersections
	o with barrier	UII.	0 ft.

TABLE 7 (Cont.)

## Other Design Parameters: Highway or Feature

	Element	Criteria	Proposed Condition
7	Rollover Between Lanes At Edge of Traveled Way	4 % Max. 8% Max.	4 % Max. 8% Max.
8	Control of Access  Interstate and other Freeways Interstate and Freeway Ramps Urban Arterials (curbed), Urban Collectors (curbed) and Local Urban Streets (curbed)	Full Full Uncontrolled	Full Full Uncontrolled
9	Median Width  Interstate and other Freeways	10 ft.	10 ft.

- 1) In heavily developed sections of metropolitan areas, conditions may necessitate a minimum LOS of D.
- 2) A 50-year frequency shall be used for design at the following locations where no overflow relief is available:
  - a. A sag vertical curves connecting negative and positive grades.
  - b. Other locations such as underpasses, depressed roadways, etc.
- 3) A 25-year frequency shall be used for design at the following locations where no overflow relief is available:
  - a. A sag vertical curves connecting negative and positive grades.
  - b. Other locations such as underpasses, depressed roadways, etc.
- 4) The check flow, used to assess the performance of the facility, should be the 100-year storm event.
- 5) Including lining material.
- 6) Refer to AASHTO Policy on Geometric Design of Highways & Streets, Figure 10-68. EN = Entrance Ramp, EX = Exit Ramp

TABLE 8
Other Design Parameters: Design Vehicle

Location	Design Vehicle	Vehicle
		Accommodated
I-81, including ramps	WB-67 <sup>(1)</sup>	WB-67 <sup>(1)</sup>
I-690, including ramps	WB-67 <sup>(1)</sup>	WB-67 <sup>(1)</sup>
I-481, including ramps	WB-67 (1)	WB-67 (1)
BL 81, including ramps	WB-67 (1)	WB-67 <sup>(1)</sup>

<sup>1)</sup> For ramps, HDM Exhibit 2-9, Case II, Condition C applies, except for longer vehicles (larger than WB-62) where minimum width can be determined using Case I widths.

**Table 9** lists the primary design values for a paved shared-use path, and **Table 10** lists the primary design values for raised cycle tracks.

TABLE 9
Primary Design Values for Paved Shared-Use Path

Element	Standard Value	Source (1)	Proposed Value
Design Speed	20 mph	AASHTO	20 mph
Shared-Use Width	10 ft. min.	AASHTO	14 ft. typ.
Adjacent Graded Width	2 ft. min.	AASHTO	2 ft. min.
Adjacent Graded Slope	1:6 max. cross slope	AASHTO	1:6 max. cross slope
Maximum Grade	5% max. desired, 8% max. for short distances or match grade of adjacent roadway	AASHTO	8% max.
Cross Slope	2% max.	HDM Chapter 18	2% max.
Horizontal Curvature	74 ft. min.	AASHTO	74 ft. min.
Stopping Sight Distance (2)	195 ft. min.	AASHTO	195 ft. min.
Horizontal Sightline Offset (3)	56 ft. min.	AASHTO	56 ft. min.
Crest Vertical Curve Length (4)	425 ft. min.	AASHTO	425 ft. min.
Horizontal Clearance	2 ft. min.	AASHTO	2 ft. min.
Vertical Clearance	10 ft. min. <sup>(5)</sup>	AASHTO	10 ft. min. <sup>(5)</sup>
Bridge Path Width	12 ft. min. clear width	BM, Table 2-1	12 ft. min.
Separation from Roadways	5 ft. min. from face of curb or edge of shoulder	AASHTO	5 ft. min.

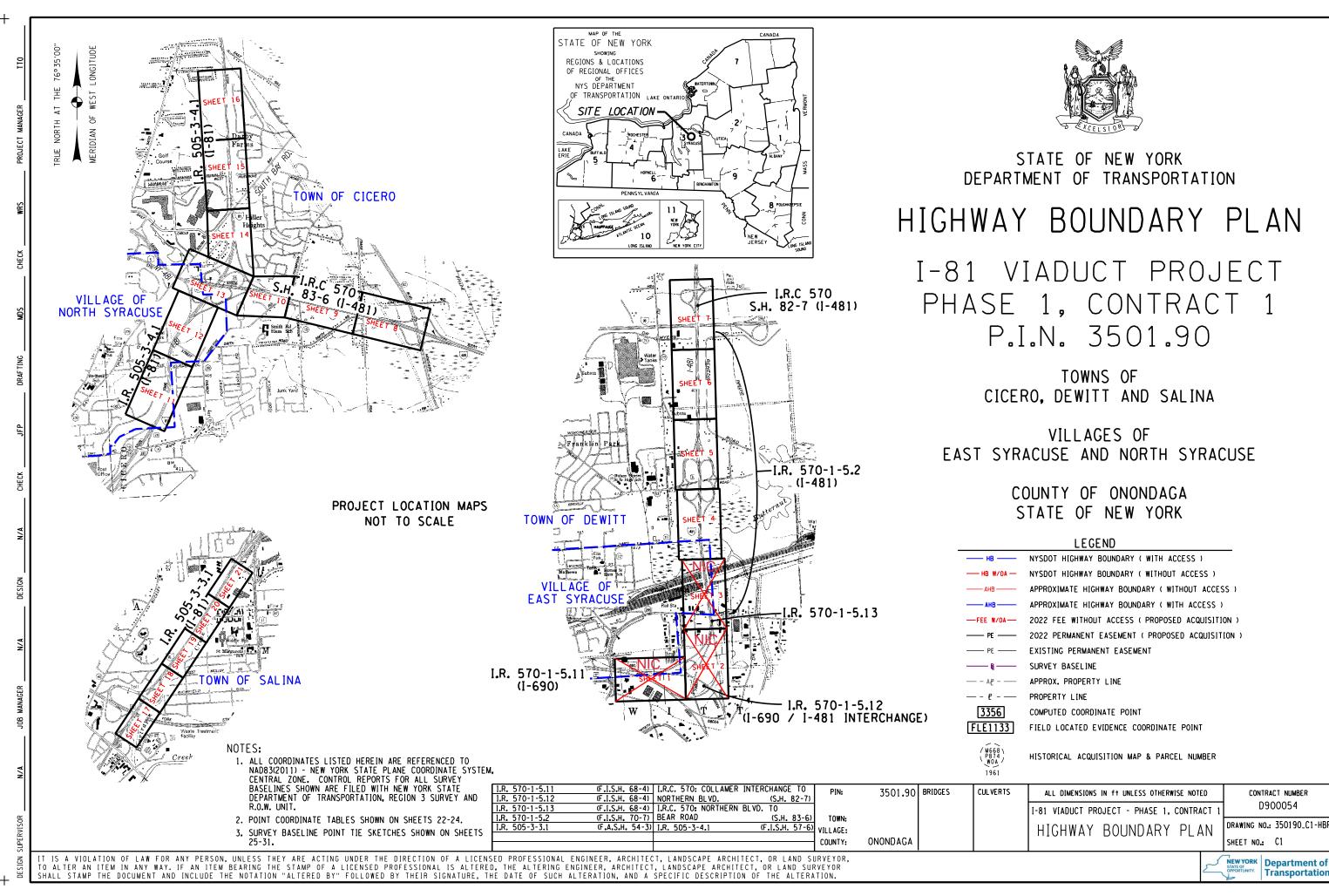
- 1) 2012 AASHTO Guide for the Development of Bicycle Facilities.
- 2) Based on 5% Grade.
- 3) Based on maximum curve radius.
- 4) Based on 10% grade differential.
- 5) Per NYSDOT Bridge Manual, 12 ft. is preferred and 13 ft. where emergency/maintenance access is required.

TABLE 10 Other Design Parameters: Railroad Facilities

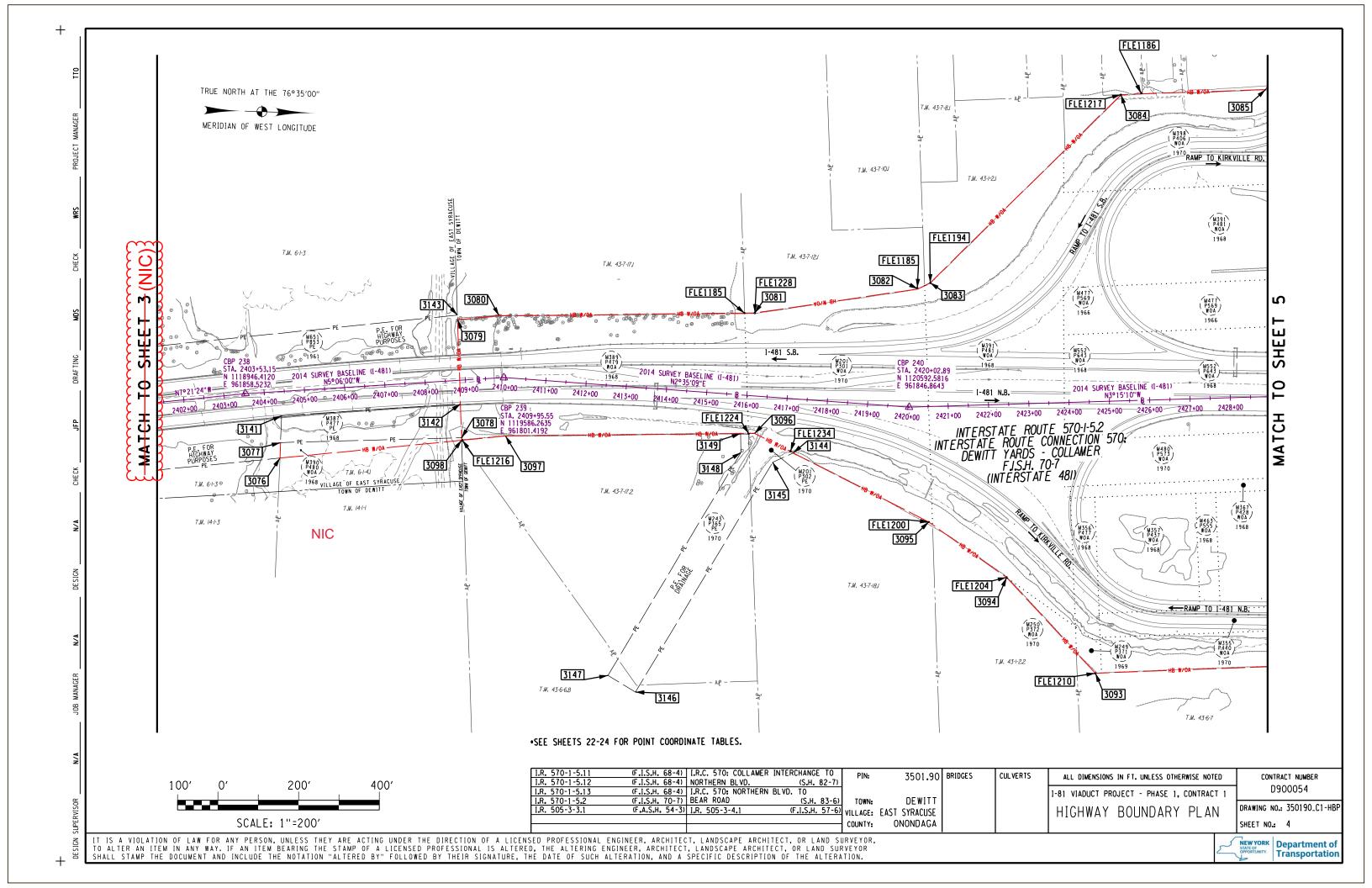
	Element	Criteria	<b>Proposed Condition</b>
CSX Railroad	Horizontal Clearance: With off-track roadway Without off-track roadway	28 ft. (20 ft. with crash wall) 20 ft. (12 ft. with crash wall)	28 ft. (20 ft. with crash wall) 20 ft. (12 ft. with crash wall)
	Vertical Clearance	22 ft. min from top of rail 23 ft. recommended	23 ft. min from top of rail

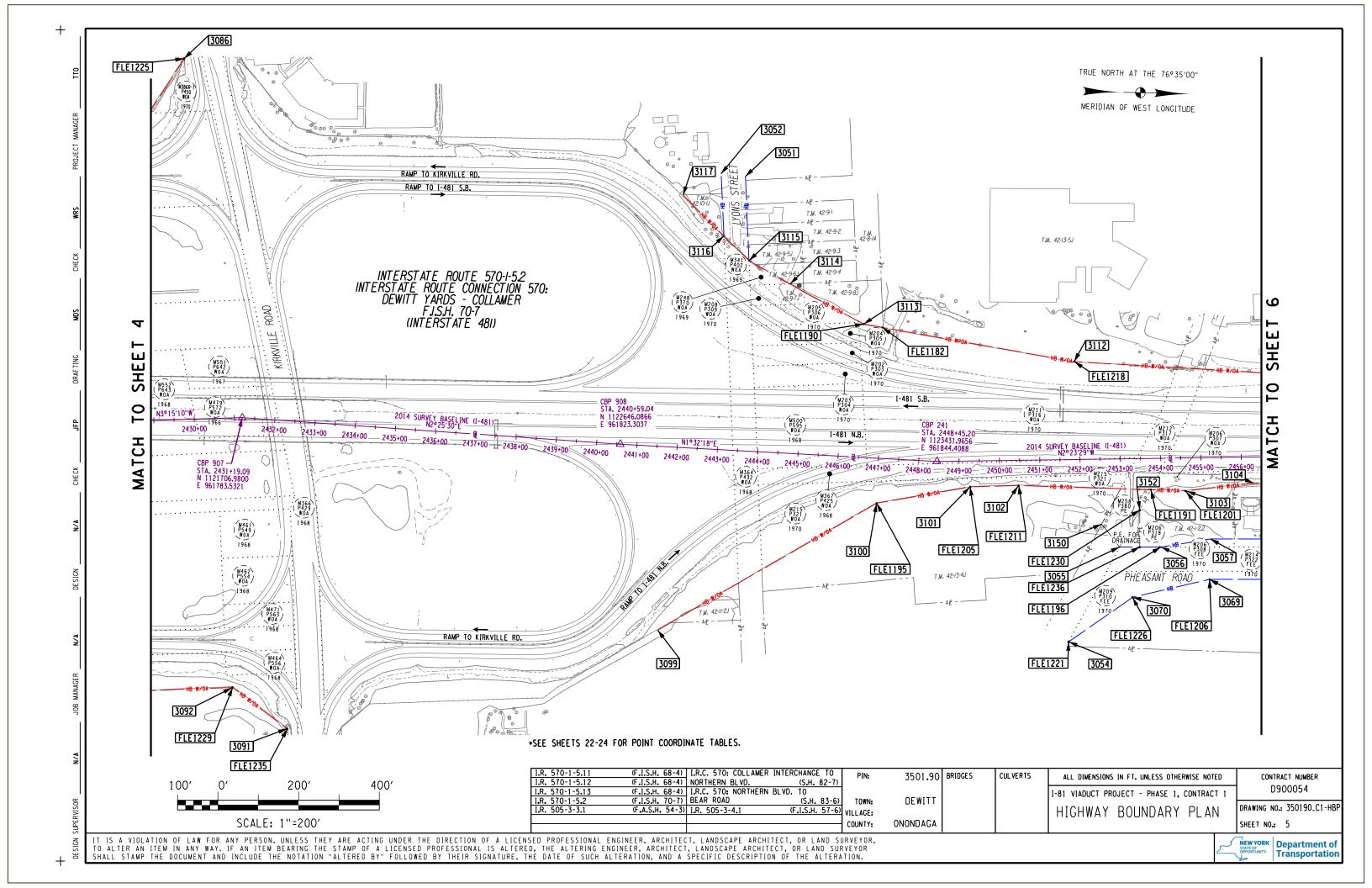
<sup>1)</sup> Based on 1-1/2-inch unbalanced superelevation (Eu) and 1-1/4 inch superelevation (Ea.).

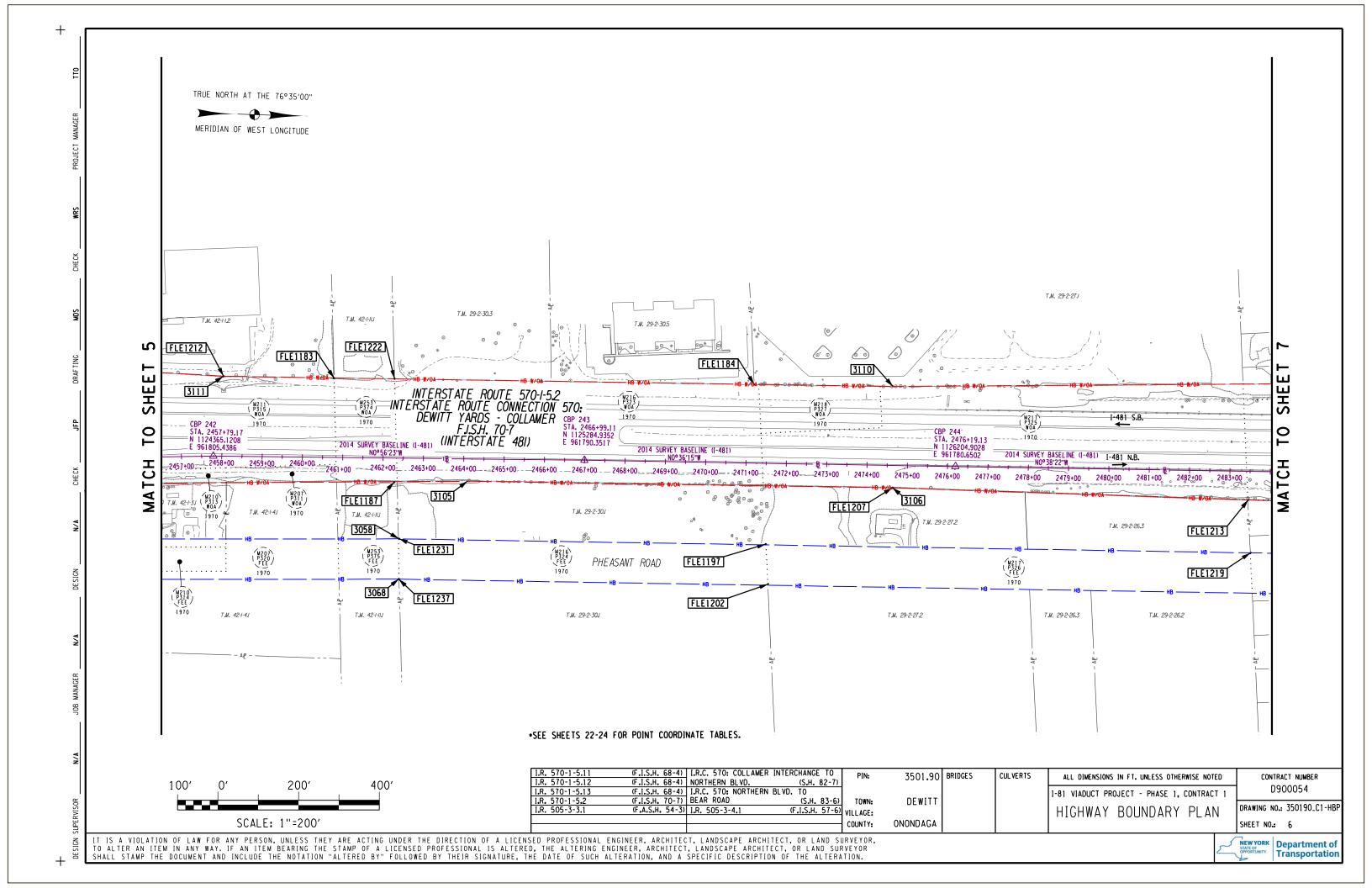
## **Highway Boundary Plans**

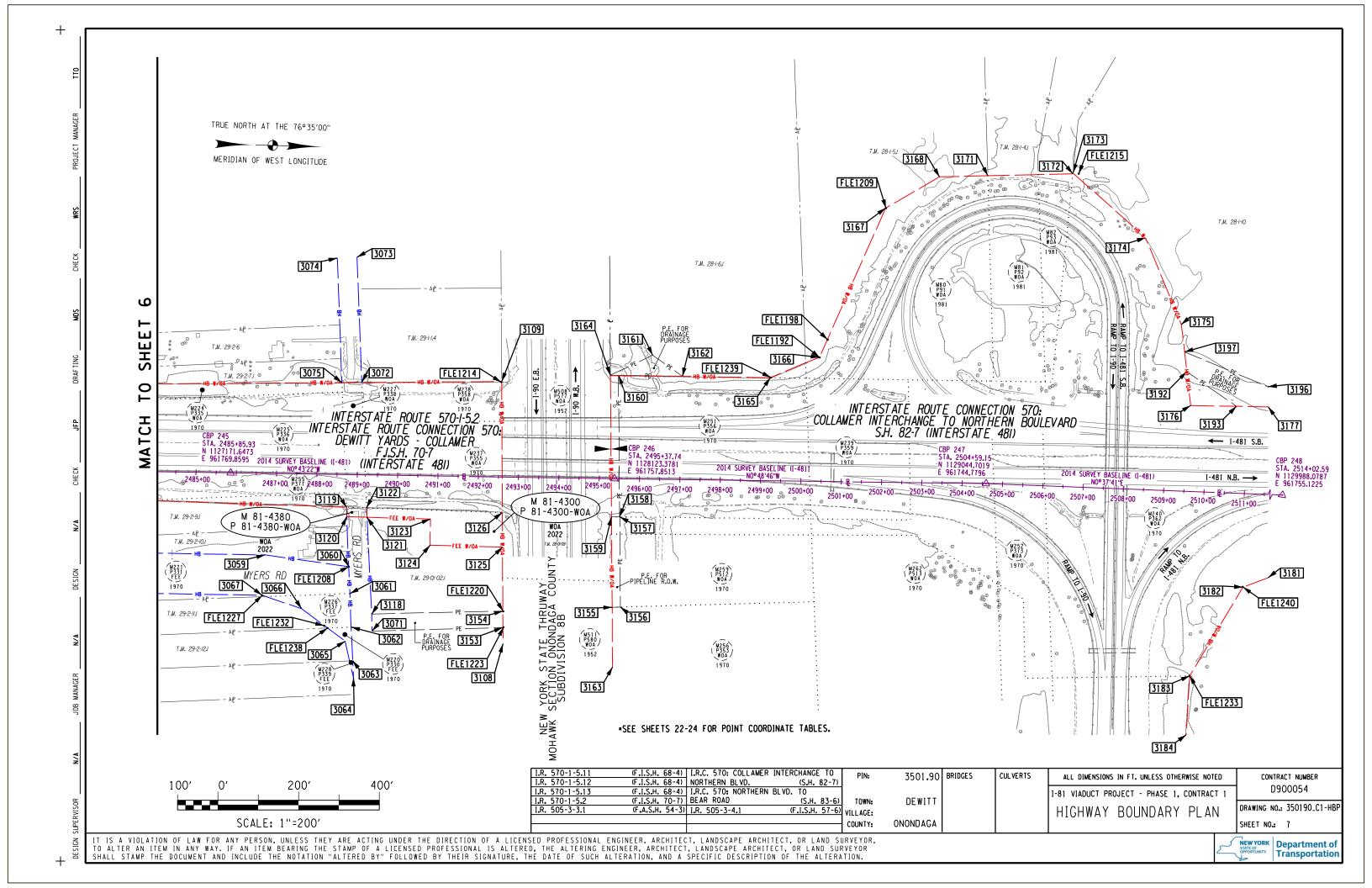


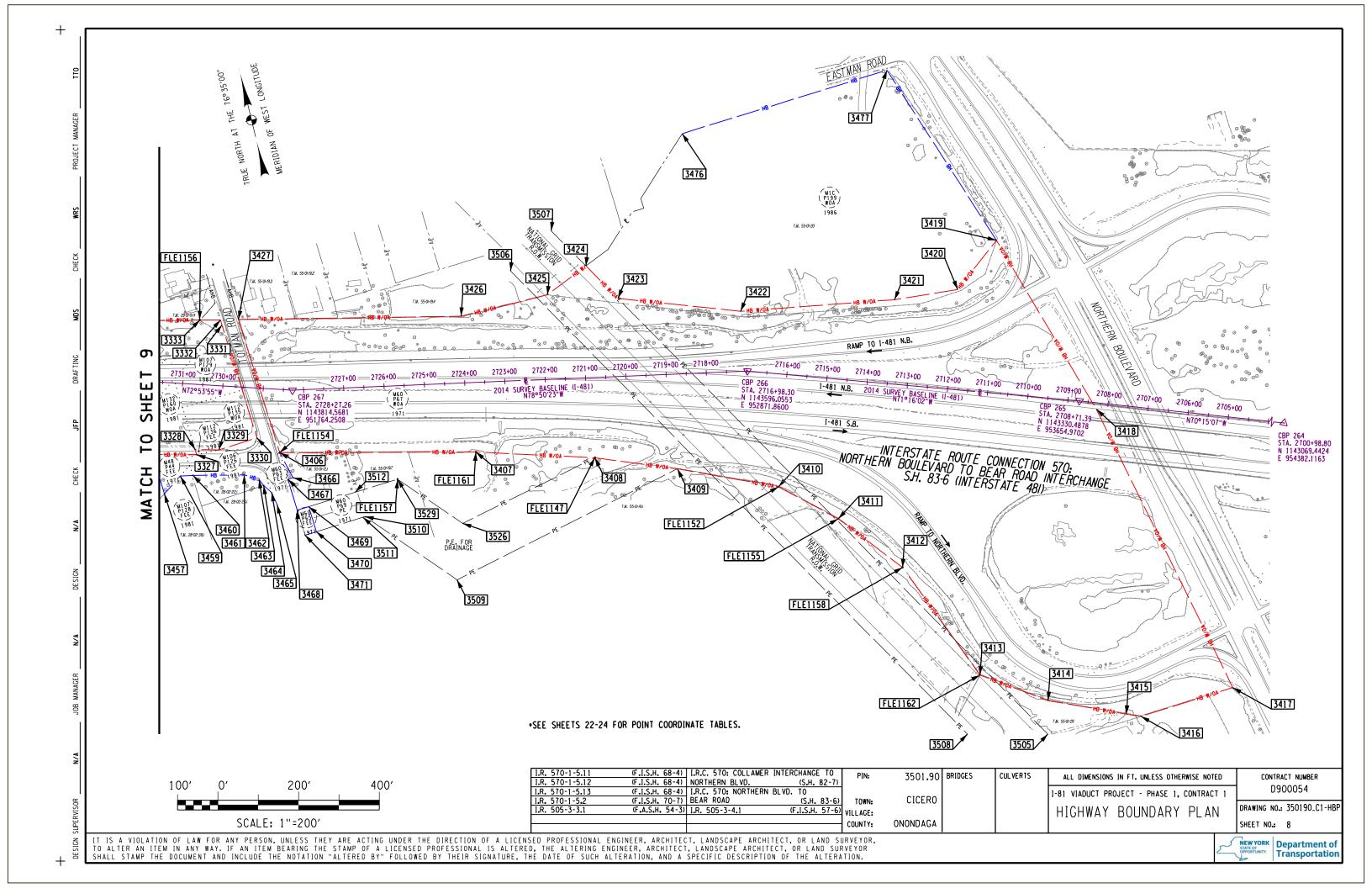
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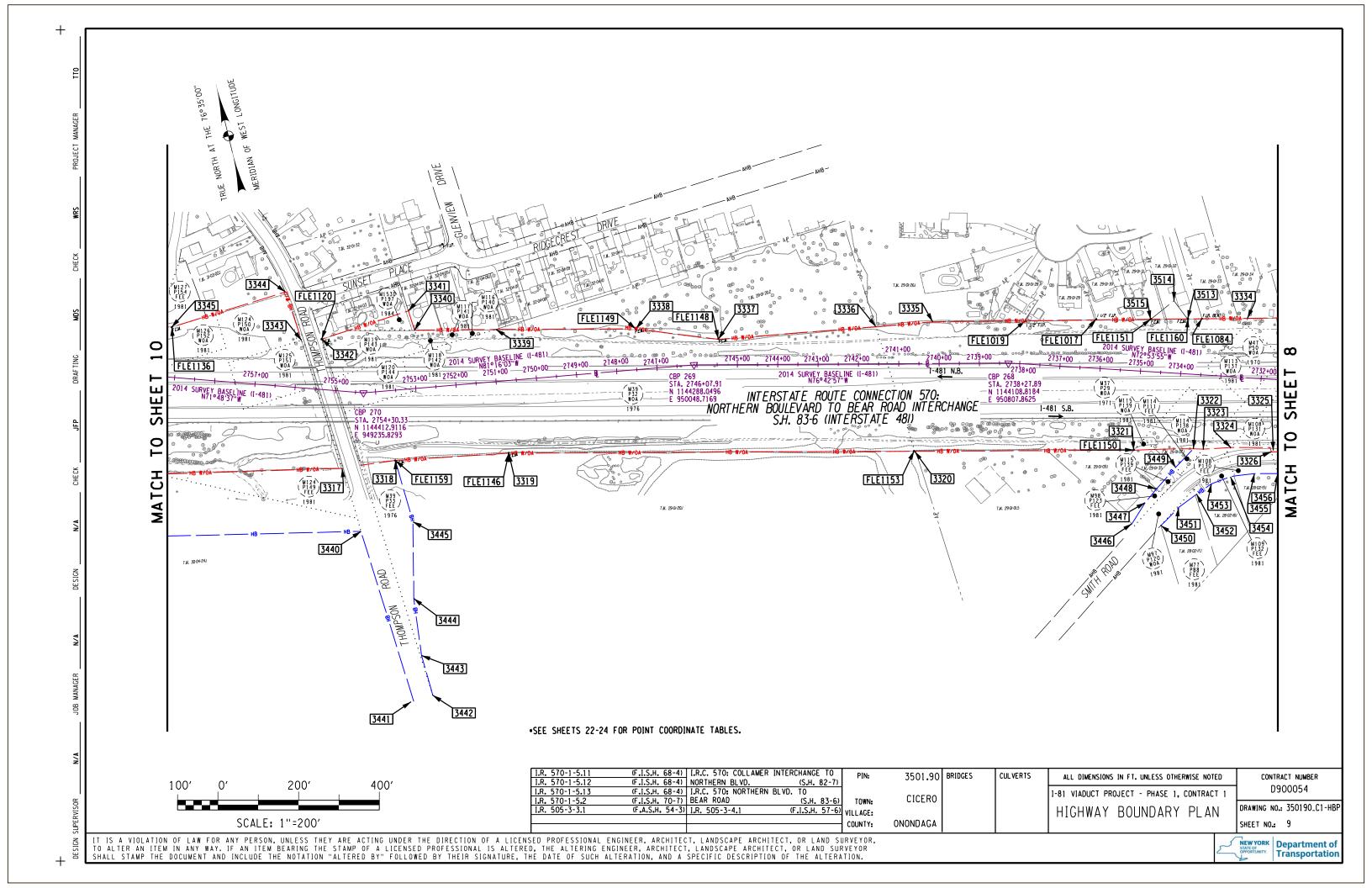


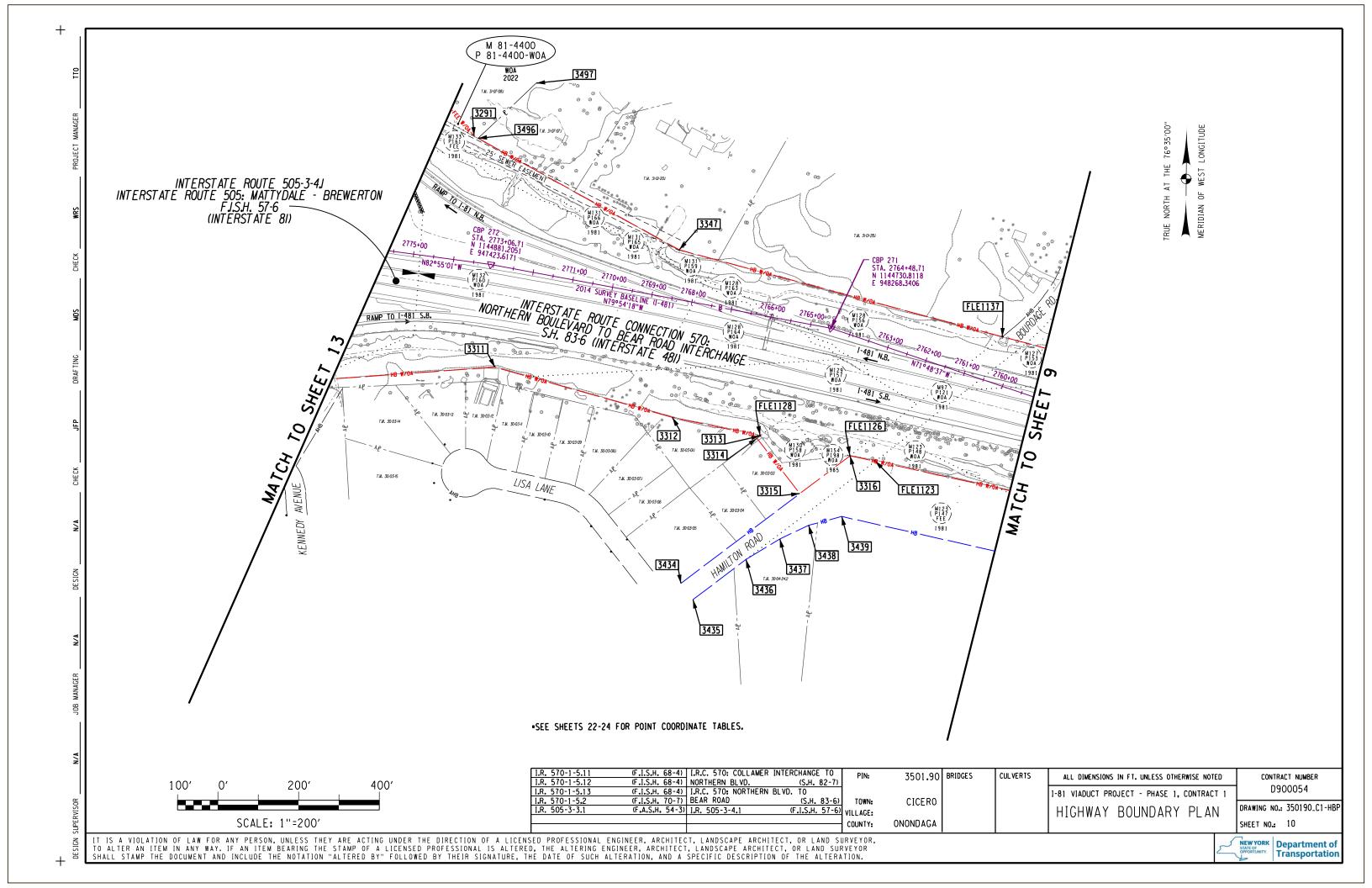


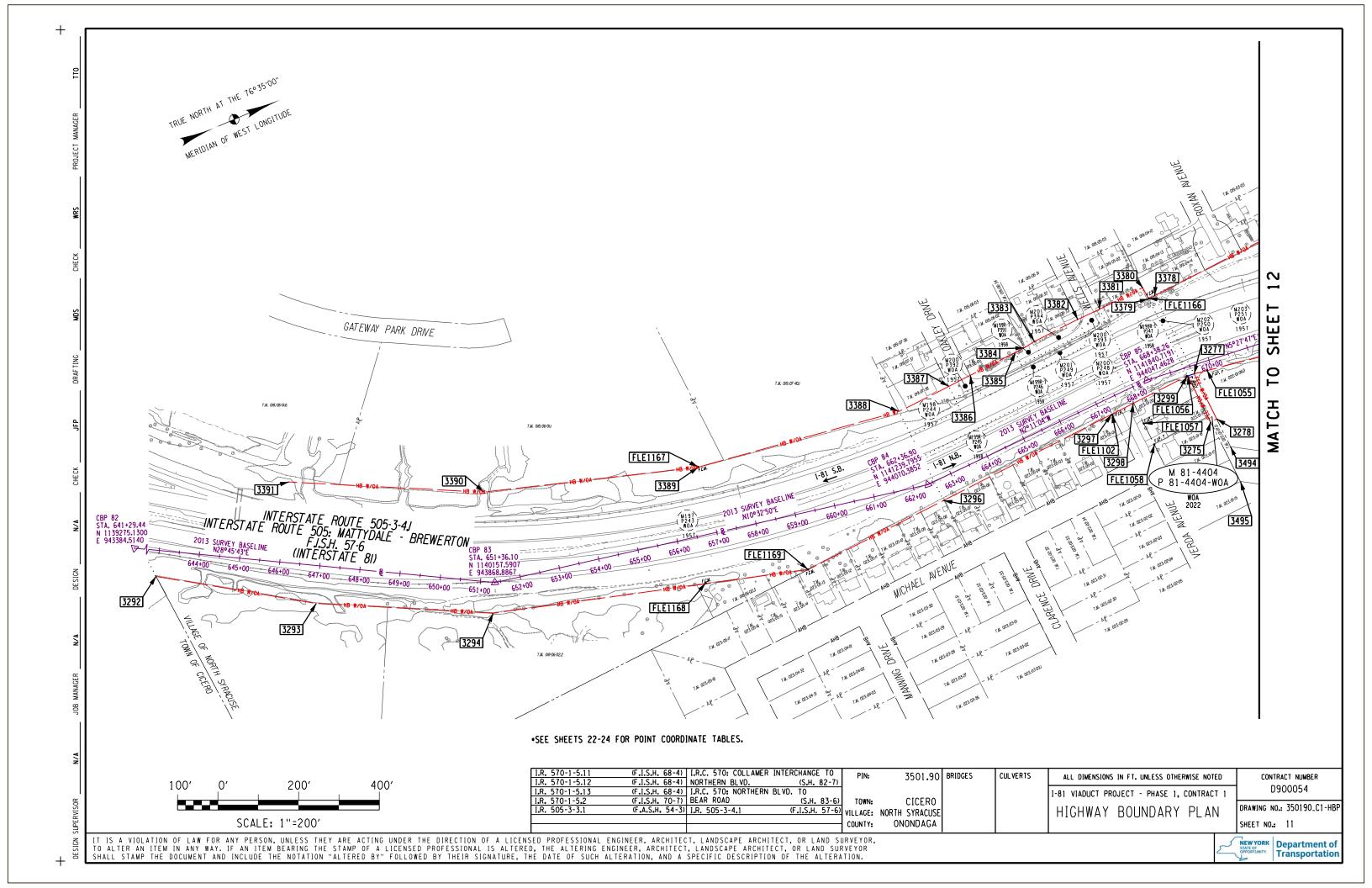


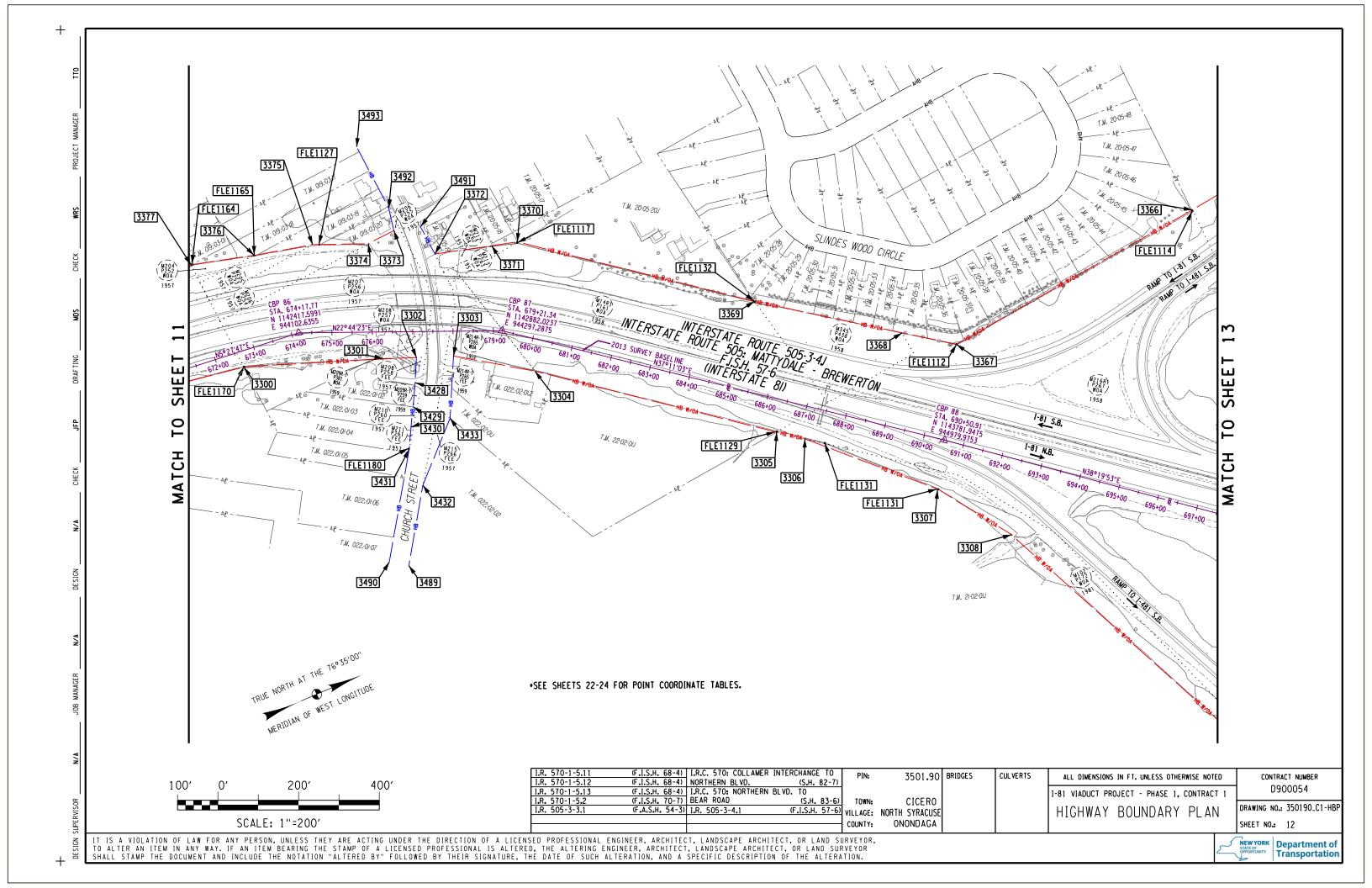


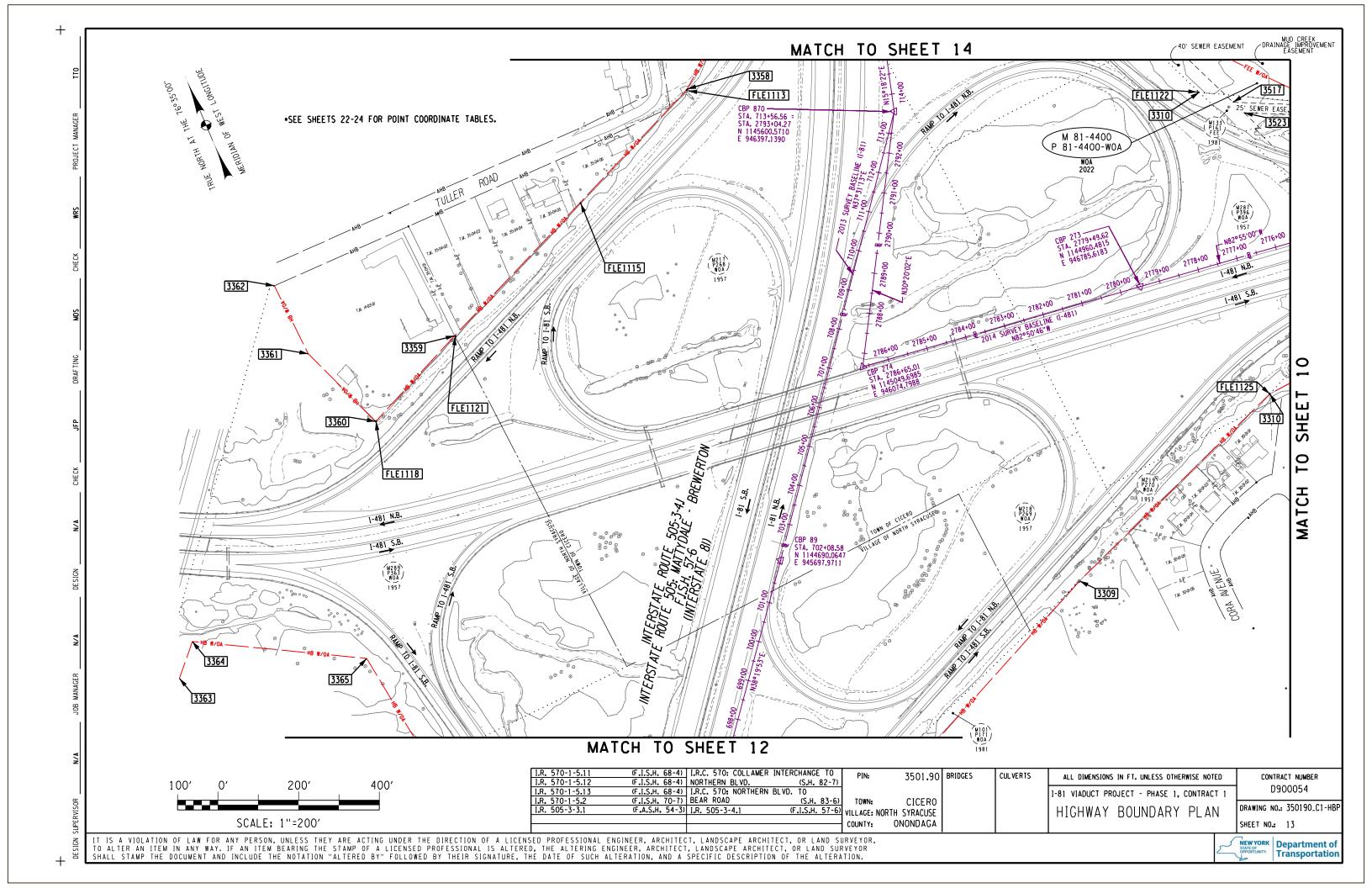


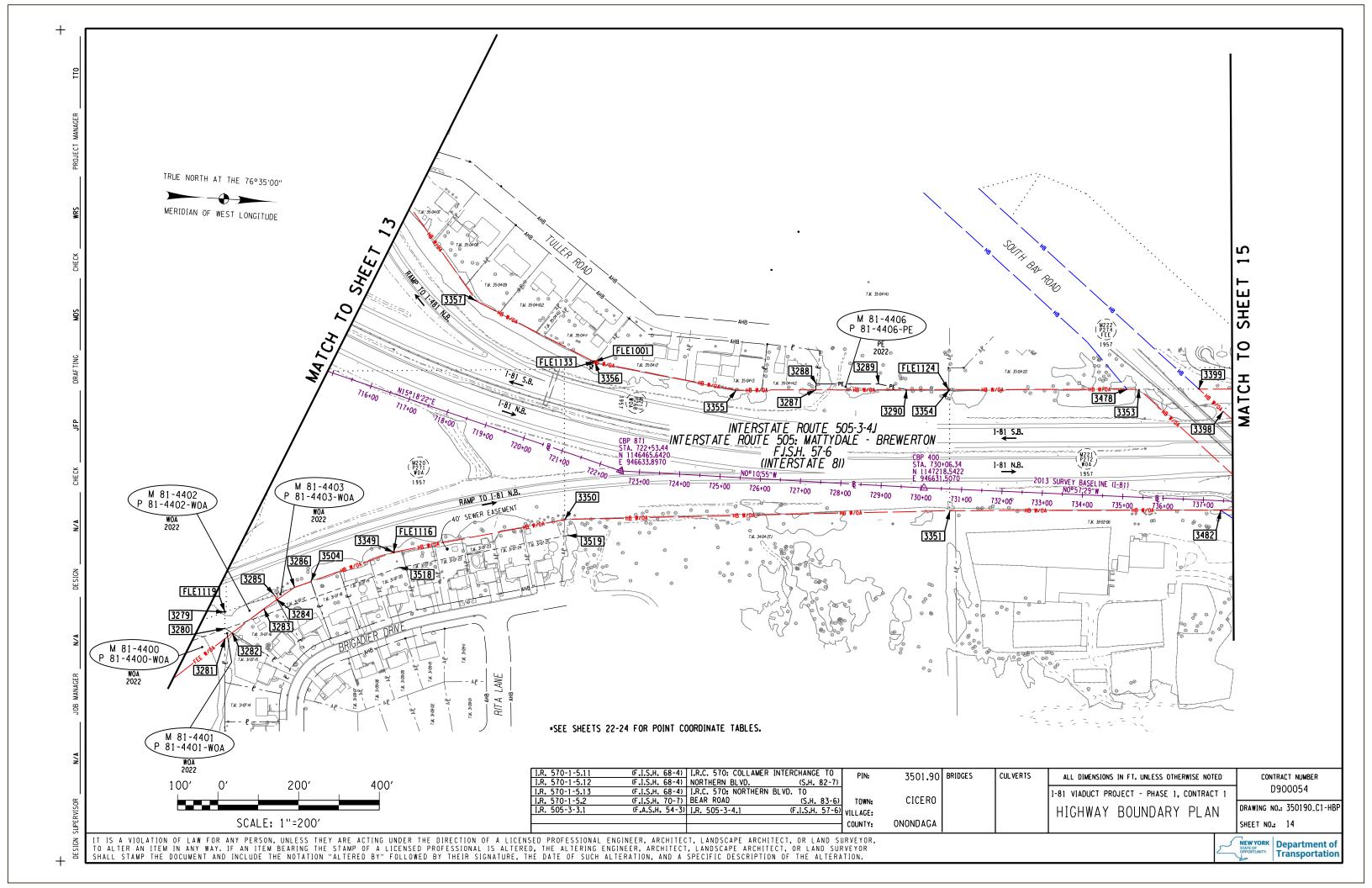


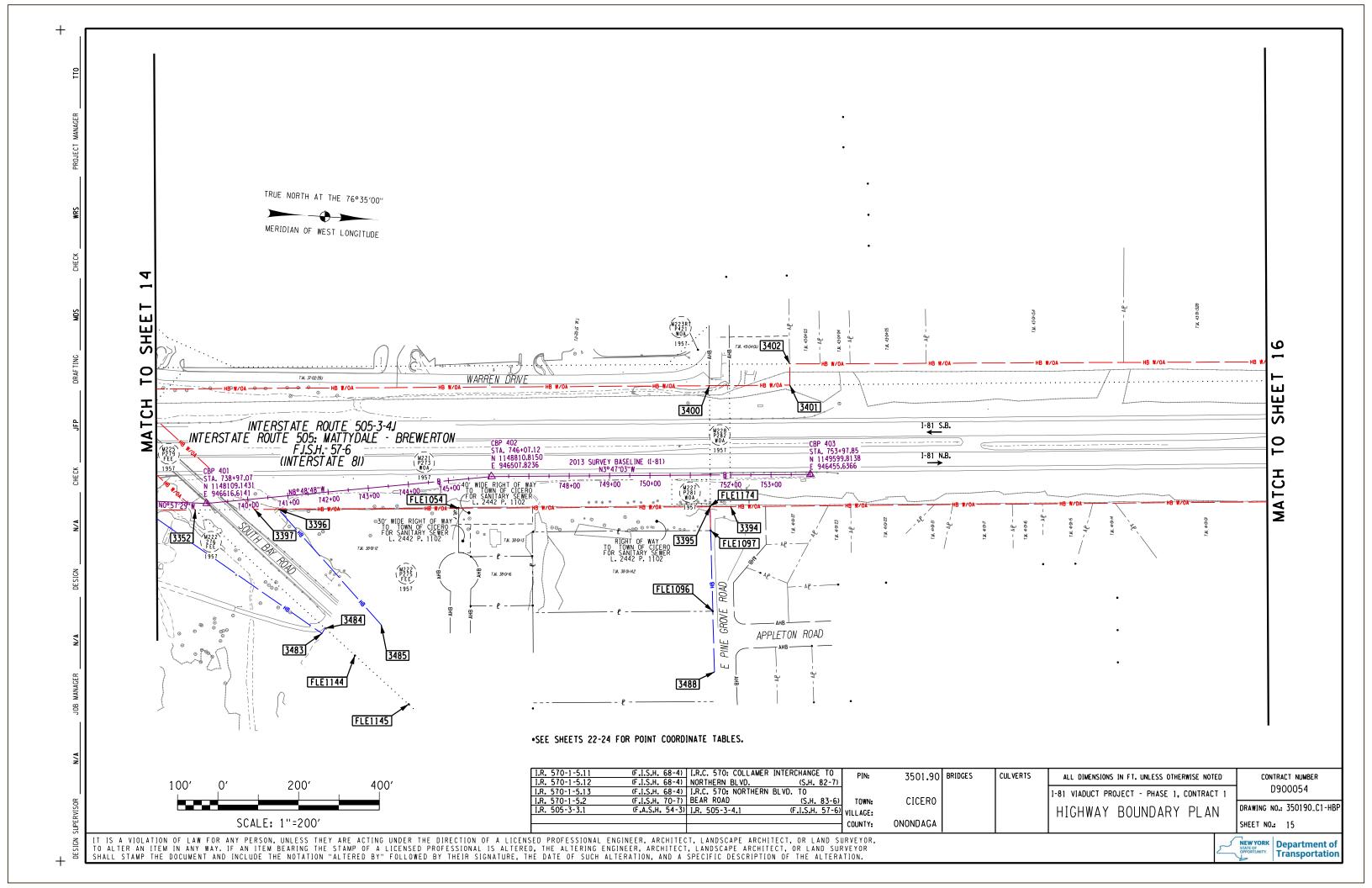


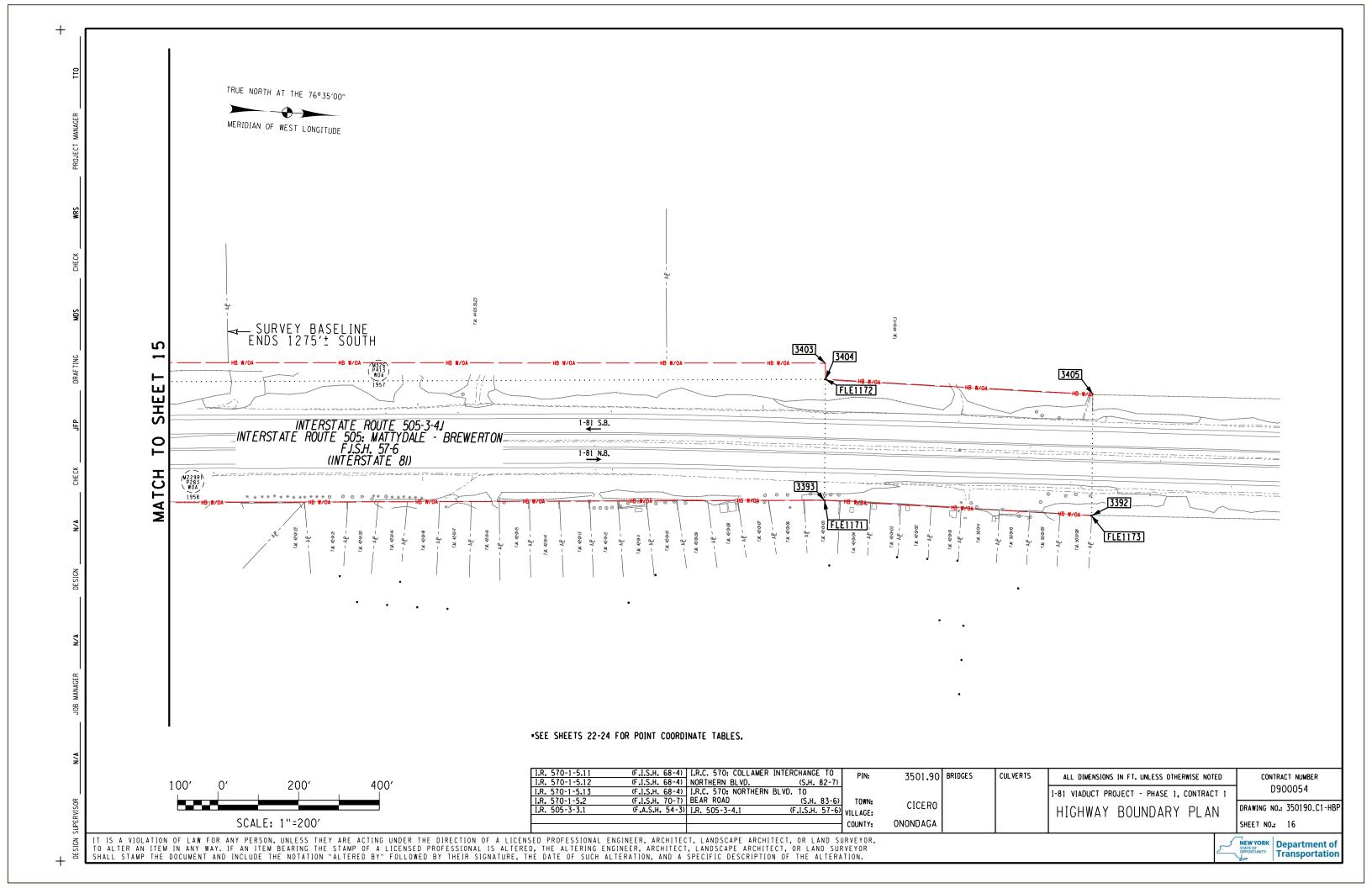


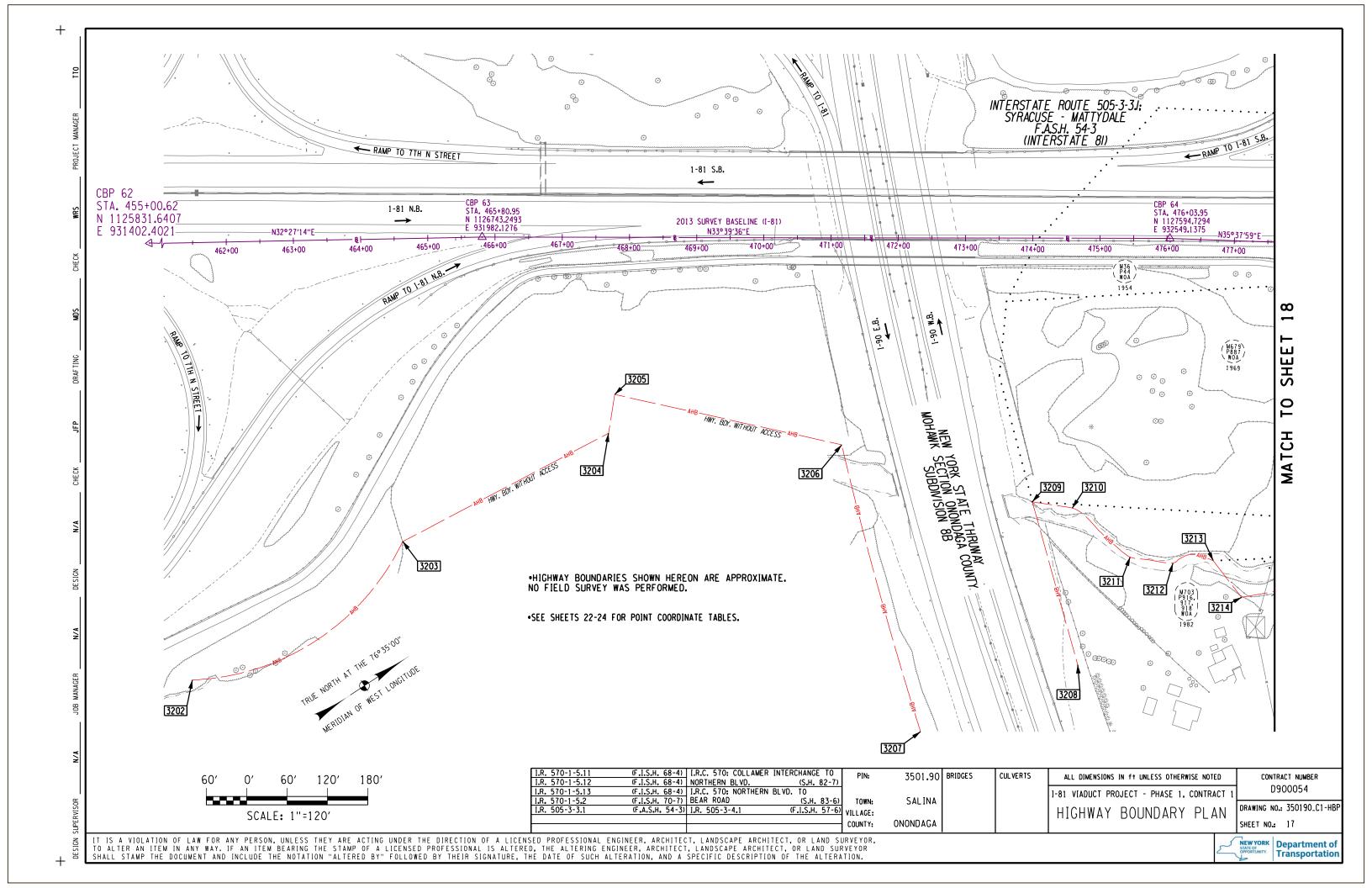


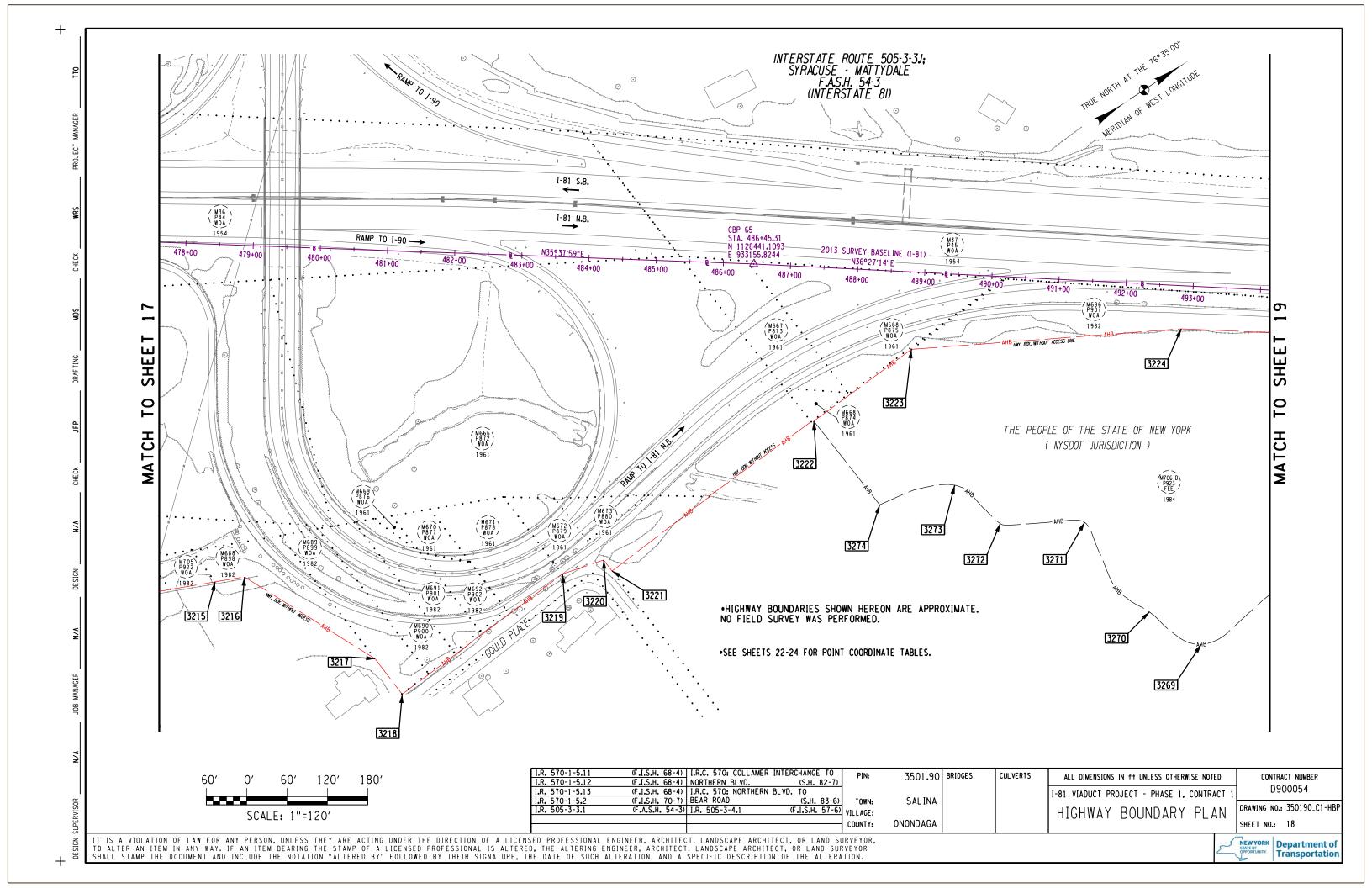


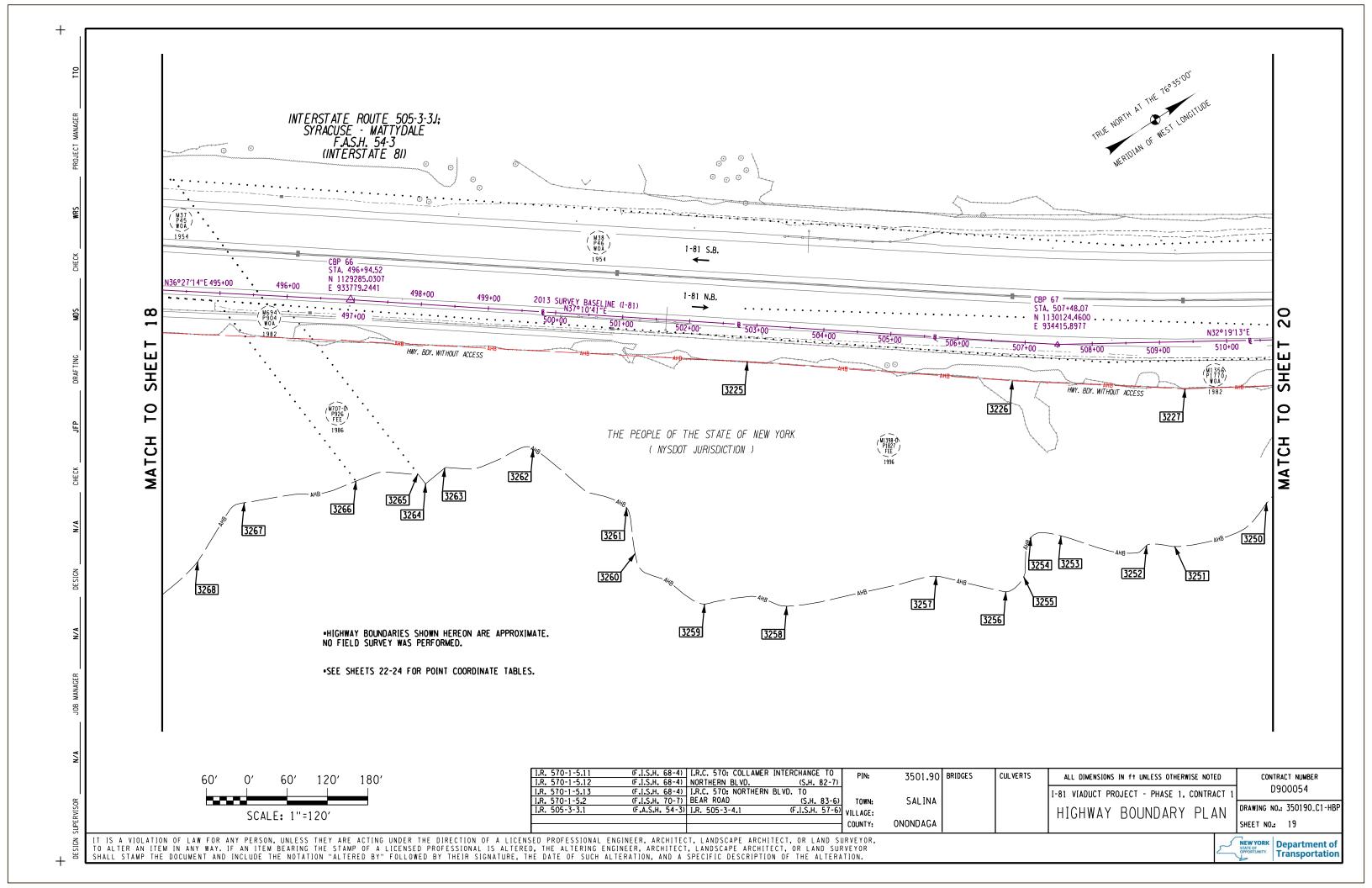


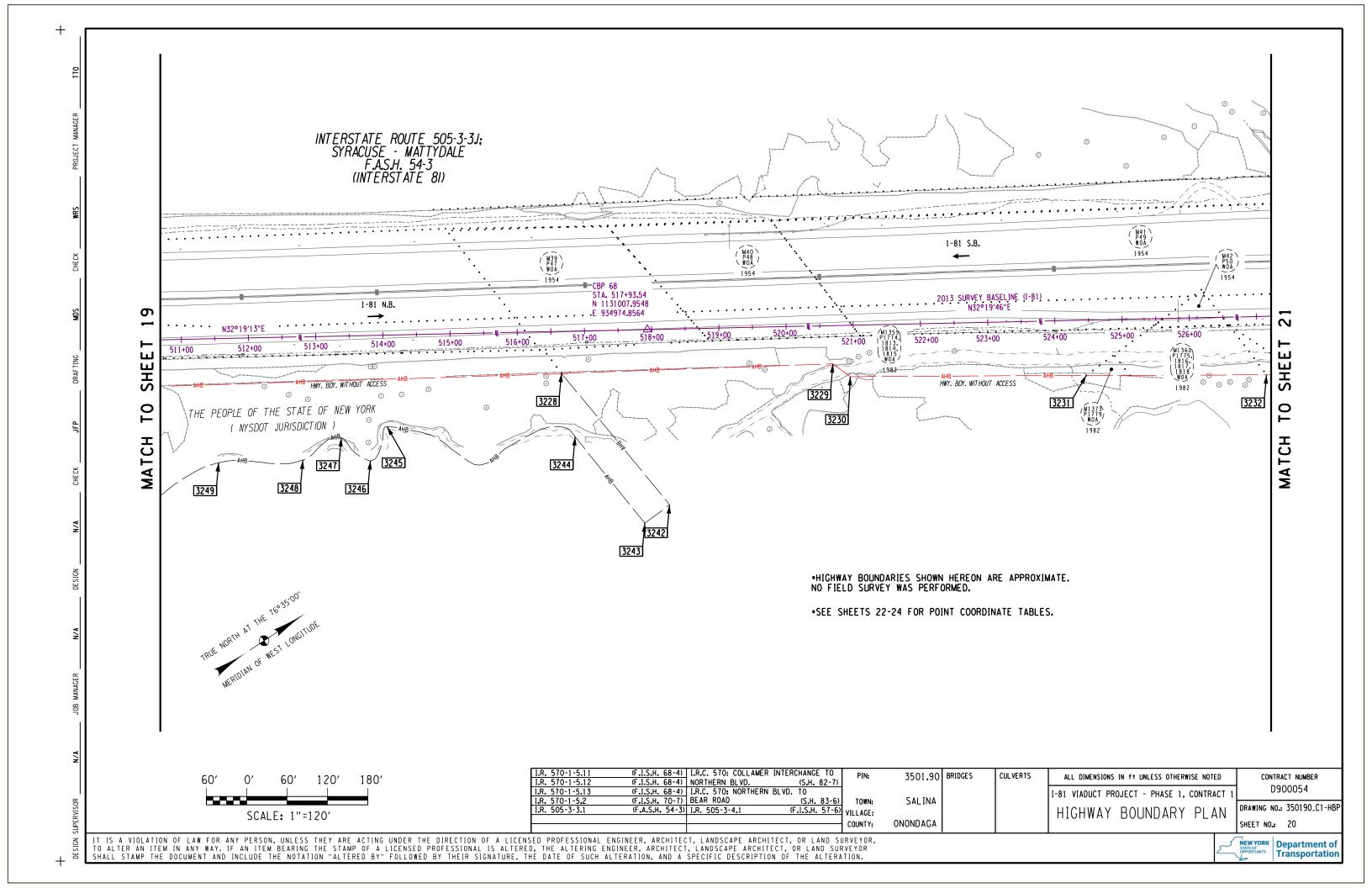


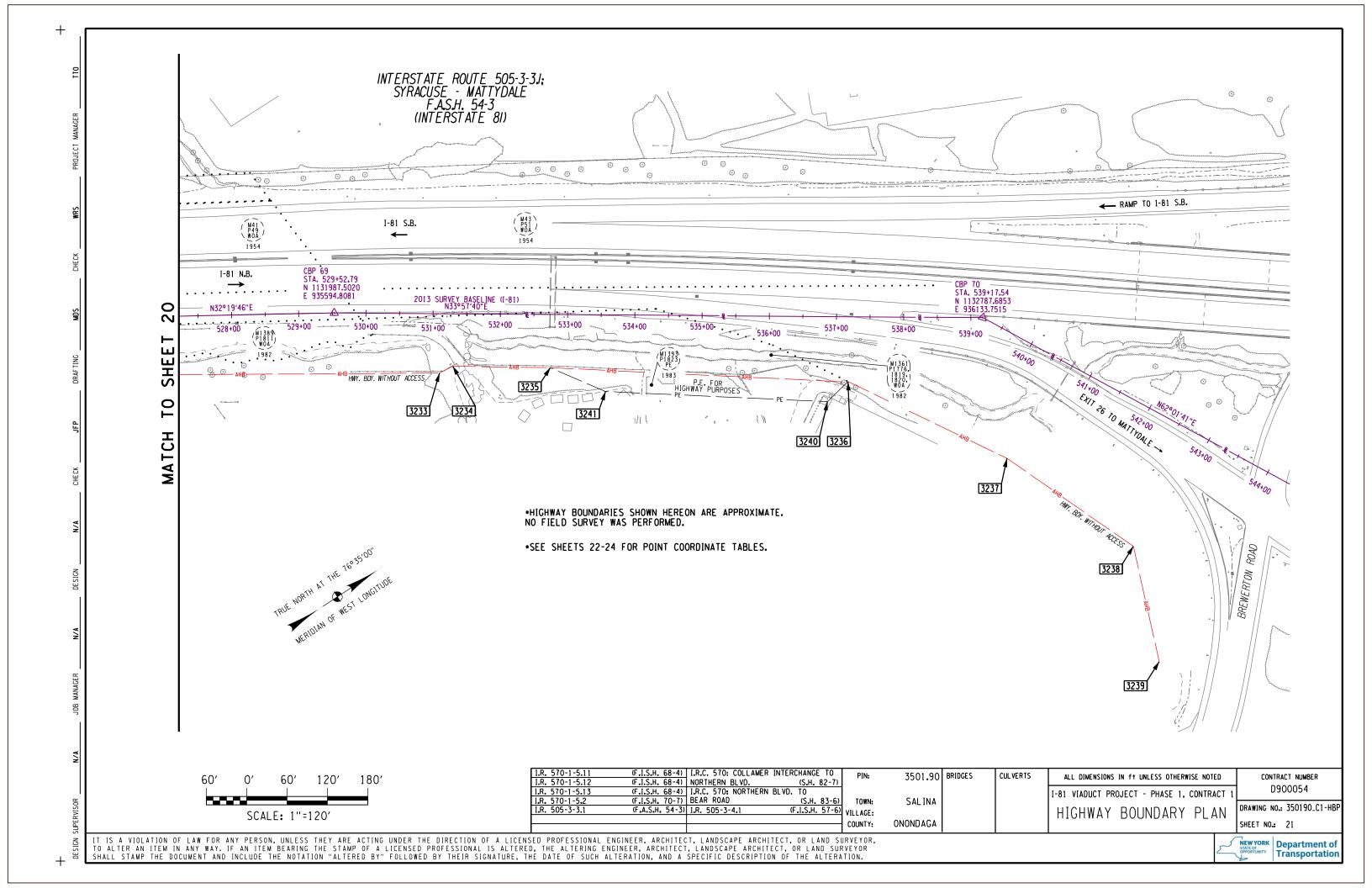












+ POINT NUMBER COORDINATE TABLE POINT NORTHING EASTING DESCRIPTION 1000 1146809.795 946299.175 1001 1146384.529 946367.376 1002 1116070.042 962410.794 1003 1146046.415 945891.443 1004 1146046.415 945891.438 1005 1146127.590 945947.471 1006 1146169.633 946041.600 1007 1146464.318 946256.117 1008 1146870.284 946016.130 IRON PIPE 1011 1145957.305 947080.556 1017 1144163.595 951045.037 1019 1144201.517 950873.725 1025 1146053.308 947050.806 1031 1144327.518 946805.266 1034 1144071.262 946708.139 1036 | 1149511.808 | 945966.862 IRON PIPE 1149627.813 945566.209 1037 1038 1153221.695 945777.837 1040 1149710.428 945881.081 1041 1149803.040 946712.249 1153141.386 945647.988 1045 1149704.998 945804.458 1046 1149684.781 946724.022 1047 1153136.446 945570.632 1048 1149698.866 945727.524 1050 1153190.809 945478.160 1051 1149633.078 945641.014 1053 1148922.407 946638.479 1054 1148733.857 946590.653 1055 1141987.691 944083.830 1056 1141935.747 944077.302 IRON PIPE 1057 1141791.374 944143.108 1058 1141794.665 944201.007 1059 | 1149362.332 | 945978.999 1060 1148947.522 947075.709 1065 1150189.075 946643.204 1068 1150268.888 946637.457 1070 1150377.696 946715.402 1072 1145814.836 945178.079 1074 1145815.225 945258.148 1076 1145863.268 945149.790 1084 1144103.346 951300.091 IRON ROD 1143902.822 946723.308 1089 1144400.568 946858.241 1095 1148923.452 946698.856 IRON ROD 1096 1149378.341 946808.432 1097 | 1149361.105 | 946609.215 1098 1148778.192 946831.639 1099 1148771.381 946709.161 IRON ROD 1100 1148931.867 946821.178 1101 1142272.222 944472.396 IRON ROD 1102 1141728.148 944091.333 1103 1147261.795 946330.710 IRON ROD 1104 | 1147299.633 | 946328.299 1105 1149641.975 947019.097 1106 1150383.040 946795.378 1107 1149628.817 946879.959 1150388.585 946875.102 1109 1149490.733 946706.565 1111 1149733.452 947010.599 IRON ROD 
 1112
 1143903.875
 944773.515
 CONC. R.O.W. MON.

 1113
 1145852.752
 945945.927
 CONC. R.O.W. MON.
 1114 | 1144571.712 | 944702.148 | CONC. R.O.W. MON.

IRON PIPE

**IRON PIPE** 

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IRON PIPE

IRON ROD

	DOINT NUM	ADED COODDINA	TE TABLE
POINT	NORTHING	IBER COORDINA EASTING	DESCRIPTION
1115	1145699.266	945592.614	CONC. R.O.W. MON.
1116	1145915.983	946869.159	CONC. R.O.W. MON.
1117	1143003.047	944111.510	CONC. R.O.W. MON.
1118	1145403.455	944912.535	CONC. R.O.W. MON.
1119	1145506.395	947041.483	CONC. R.O.W. MON.
1120	1144566.699	949166.380	CONC. R.O.W. MON.
1121	1145519.271	945177.218	CONC. R.O.W. MON.
1122	1145346.931	947107.483	CONC. R.O.W. MON.
1123	1144402.614	948380.832	CONC. R.O.W. MON.
1124	1147265.678	946385.879	CONC. R.O.W. MON.
1125	1144589.149	946975.230	CONC. R.O.W. MON.
1126	1144414.594	948317.758	CONC. R.O.W. MON.
1127	1142550.171	943921.855	CONC. R.O.W. MON.
1128	1144462.536	948094.497	CONC. R.O.W. MON.
1129	1143409.091	944795.842	CONC. R.O.W. MON.
1130	1143507.494	944869.761	CONC. R.O.W. MON.
1131	1143720.209	945086.036	CONC. R.O.W. MON.
1132	1143486.806	944478.676	CONC. R.O.W. MON.
1133	1146384.555	946367.696	CONC. R.O.W. MON.
1134	1115791.249	961930.943	CONC. R.O.W. MON.
1135	1115416.216	961800.948	CONC. R.O.W. MON.
1136	1144682.778	948812.179	CONC. R.O.W. MON.
1137	1144713.596	948694.000	CONC. R.O.W. MON.
1138	1114523.703	962624.351	CONC. R.O.W. MON.
1139	1116461.920	962388.379	CONC. R.O.W. MON.
1140	1116327.939	962037.555	CONC. R.O.W. MON.
1141	1114406.443	959362.027	CONC. R.O.W. MON.
1142	1113255.094	962837.515	CONC. R.O.W. MON.
1143	1114116.722	958796.840	CONC. R.O.W. MON.
1144 1145	1148499.027	946970.969	CONC. R.O.W. MON.
1145	1148639.600 1144183.204	947083.629 949550.988	CONC. R.O.W. MON. CONC. R.O.W. MON.
1147	1143476.299	952454.343	CONC. R.O.W. MON.
1148	1144336.504	950122.605	CONC. R.O.W. MON.
1149	1144408.086	949929.769	CONC. R.O.W. MON.
1150	1143826.745	951059.118	CONC. R.O.W. MON.
1151	1144132.062	951176.485	CONC. R.O.W. MON.
1152	1143299.010	952879.870	CONC. R.O.W. MON.
1153	1143951.936	950529.021	CONC. R.O.W. MON.
1154	1143671.667	951696.759	CONC. R.O.W. MON.
1155	1143187.416	953004.846	CONC. R.O.W. MON.
1156	1144038.299	951581.586	CONC. R.O.W. MON.
1157	1143539.311	951965.947	CONC. R.O.W. MON.
1158	1143032.521	953131.437	CONC. R.O.W. MON.
1159	1144231.354	949273.507	CONC. R.O.W. MON.
1160	1144111.391	951266.101	CONC. R.O.W. MON.
1161	1143558.977	952170.654	CONC. R.O.W. MON.
1162	1142728.676	953254.859	CONC. R.O.W. MON.
1164	1142239.865	943842.060	CONC. R.O.W. MON.
1165	1142391.661	943882.570	CONC. R.O.W. MON.
1166	1141924.699	943863.124	CONC. R.O.W. MON.
1167	1140733.909	943804.815	CONC. R.O.W. MON.
1168	1140636.984	944076.901	CONC. R.O.W. MON.
1169	1140883.691	944146.482	CONC. R.O.W. MON.
1170	1142259.214	944126.048	CONC. R.O.W. MON.
1171 1172	1152355.665 1152337.523	946344.897	CONC. R.O.W. MON. CONC. R.O.W. MON.
1173	1153018.009	946044.776 946339.346	CONC. R.O.W. MON.
1173	1149355.951	946549.867	CONC. R.O.W. MON.
1175	1114412.716	959579.366	CONC. R.O.W. MON.
1176	1113863.048	959602.492	CONC. R.O.W. MON.
1178	1146809.115	946114.409	MAG NAIL
1179	1144163.832	951645.955	MAG NAIL

POINT	POINT NUN NORTHING	ABER COORDINA EASTING	TE TABLE  DESCRIPTION
1180	1142554.405	944474.854	MAG NAIL
1182	1123288.026	961516.202	IRON PIPE
1183	1124658.903	961604.059	IRON PIPE
1184	1125700.419	961590.776	IRON ROD
1185	1120178.571	961625.333	IRON ROD
1186	1121146.827	961053.283	IRON ROD
1187	1124815.067	961857.827	IRON ROD
1188	1116327.984	962037.520	CONC. R.O.W. MON.
1189	1120605.004	961550.653	CONC. R.O.W. MON.
1190	1123241.319	961509.383	CONC. R.O.W. MON.
1191	1123964.156	961899.893	CONC. R.O.W. MON.
1192	1128623.930	961443.850	CONC. R.O.W. MON.
1193	1116461.831	962388.231	CONC. R.O.W. MON.
1194	1120636.837	961537.695	CONC. R.O.W. MON.
1195	1123285.130	961952.457	CONC. R.O.W. MON.
1196	1123990.634	962041.321	CONC. R.O.W. MON.
1197	1125740.491	961986.106	CONC. R.O.W. MON.
1198	1128642.298	961399.125	CONC. R.O.W. MON.
1199	1116594.358	962403.716	CONC. R.O.W. MON.
1200	1120649.409	962130.236	CONC. R.O.W. MON.
1201	1124049.841	961900.535	CONC. R.O.W. MON.
1202	1125748.734	962084.902	CONC. R.O.W. MON.
1203	1116853.101	962351.463	CONC. R.O.W. MON.
1204	1120845.685	962262.210	CONC. R.O.W. MON.
1205	1123516.120	961905.345	CONC. R.O.W. MON.
1206	1124115.552	962117.963	CONC. R.O.W. MON.
1207	1126050.448	961837.758	CONC. R.O.W. MON.
1208	1127470.947	961994.365	CONC. R.O.W. MON.
1209	1128777.983	961069.039	CONC. R.O.W. MON.
1210	1121072.361	962493.924	CONC. R.O.W. MON.
1211	1123635.869	961898.601	CONC. R.O.W. MON.
1212	1124384.788	961606.995	CONC. R.O.W. MON.
1213	1126933.142	961843.649	CONC. R.O.W. MON.
1214	1127836.272	961526.602	CONC. R.O.W. MON.
1215	1129253.498	960970.630	CONC. R.O.W. MON.
1216	1119487.701	961959.126	CONC. R.O.W. MON.
1217	1121096.263	961058.298	CONC. R.O.W. MON.
1218	1123765.461	961587.398	CONC. R.O.W. MON.
1219	1126942.878	961974.063	CONC. R.O.W. MON.
1220	1127856.613	962094.026	CONC. R.O.W. MON.
1221	1123770.365	962282.883	CONC. R.O.W. MON.
1222	1124809.067	961601.640	CONC. R.O.W. MON.
1223	1127858.790	962133.892	CONC. R.O.W. MON.
1224	1120196.708	961923.434	CONC. R.O.W. MON.
1225	1121538.702	960898.213	CONC. R.O.W. MON.
1226	1123925.993	962167.830	CONC. R.O.W. MON.
1227	1127258.297	962070.810	CONC. R.O.W. MON.
1228	1120203.597	961624.335	CONC. R.O.W. MON.
1229	1121701.335	962452.134	CONC. R.O.W. MON.
1230	1123937.880	961951.248	CONC. R.O.W. MON.
1231	1124830.809	961997.866	CONC. R.O.W. MON.
1232	1127414.032	962142.215	CONC. R.O.W. MON.
1233	1129562.116	962206.910	CONC. R.O.W. MON.
1234	1120302.121	961963.995	CONC. R.O.W. MON.
1235	1121839.834	962551.364	CONC. R.O.W. MON.
1236	1123940.474	962043.216	CONC. R.O.W. MON.
1237	1124833.014	962097.940	CONC. R.O.W. MON.
1238	1127422.618	962147.938	CONC. R.O.W. MON.
1239	1128504.661	961496.715	CONC. R.O.W. MON.
1240	1129688.251	961983.601	CONC. R.O.W. MON.
3007	1113244.571	962851.590	HWY. BDY. W/OA
3008	1113256.895	962836.840	HWY. BDY. W/OA
3009	1113900.136	962719.433	HWY. BDY. W/OA

		ADER COORDINA	
POINT	NORTHING	EASTING	DESCRIPTION
3010	1115737.713	962437.551	HWY. BDY. W/OA
3011	1116003.889	962415.295	HWY. BDY. W/OA
3012	1116492.753	962386.619	HWY. BDY. W/OA
3013	1116557.801	962411.283	HWY. BDY. W/OA
3014	1116853.176	962351.469	HWY. BDY. W/OA
3015	1117683.126	962309.593	HWY. BDY. W/OA
3016	1117648.707	962190.534	HWY. BDY. W/OA
3017	1117424.116	962236.274	HWY. BDY. W/OA
3018	1117402.661	962240.606	HWY. BDY. W/OA
3019	1117312.656	961931.869	HWY. BDY. W/OA
3020	1117545.493	961901.478	HWY. BDY. W/OA
			HWY. BDY. W/OA
3021	1117513.498	961792.754	
3022	1117287.499	961845.577	HWY. BDY. W/OA
3023	1116579.055	962011.138	HWY. BDY. W/OA
3024	1116512.646	962026.755	HWY. BDY. W/OA
3025	1116327.966	962037.584	HWY. BDY. W/OA
3026	1115791.269	961931.113	HWY. BDY. W/OA
3027	1115416.268	961751.110	HWY. BDY. W/OA
3028	1114851.257	961301.108	HWY. BDY. W/OA
3029	1114439.084	960481.907	HWY. BDY. W/OA
3030	1114406.680	959362.384	HWY. BDY. W/OA
3031	1114455.692	958847.319	HWY. BDY. W/OA
3032	1114500.858	958515.012	HWY. BDY. W/OA
3033	1114156.868	958524.484	HWY. BDY. W/OA
3034	1114117.016	958796.908	HWY. BDY. W/OA
3035	1113825.714	959720.460	HWY. BDY. W/OA
3036	1113606.464	960152.986	HWY. BDY. W/OA
3037	1113357.052	960535.119	HWY. BDY. W/OA
3038	1113277.119	960540.077	HWY. BDY. W/OA
3039	1113283.516	960629.611	HWY. BDY. W/OA
3040	1113186.640	960747.629	HWY. BDY. W/OA
3042	1116556.196	962894.722	HWY. BDY.
3043	1116598.633	962403.027	HWY. BDY.
3044	1116596.132	962007.151	HWY. BDY.
3045	1116626.708	961241.806	HWY. BDY.
3046	1123019.931	962334.023	HWY. BDY.
3047	1123005.640	962124.520	HWY. BDY.
3048	1122962.215		
		962355.791	HWY. BDY.
3049	1122948.536	962159.353	HWY. BDY.
3050	1117506.353	962219.526	HWY. BDY.
3051	1122937.615	961151.256	HWY. BDY.
3052	1122877.323	961146.722	HWY. BDY.
3054	1123770.730	962282.705	HWY. BDY.
3055	1123890.829	962043.992	HWY. BDY.
3056	1123992.968	962041.214	HWY. BDY.
3057	1124115.087	962018.128	HWY. BDY.
	1124113.067	961997.959	
3058			HWY. BDY.
3059	1127263.003	961970.978	HWY. BDY.
3060	1127470.399	961994.069	HWY. BDY.
3061	1127475.508	962060.823	HWY. BDY.
3062	1127480.818	962143.870	HWY. BDY.
3063	1127487.118	962226.782	HWY. BDY.
3064	1127489.846	962268.891	HWY. BDY.
3065	1127466.868	962179.188	HWY. BDY.
3066	1127356.490		
		962101.466	HWY. BDY.
3067	1127258.094	962071.027	HWY. BDY.
3068	1124833.079	962097.929	HWY. BDY.
3069	1124115.640	962118.155	HWY. BDY.
3070	1123925.823	962167.945	HWY. BDY.
3071	1127533.121	962151.950	HWY. BDY.
3072	1127490.606	961536.845	HWY. BDY.
3073	1127470 275	961226 817	HW/W RIN
3073 3074	1127470.375 1127421.420	961226.817 961230.488	HWY. BDY. HWY. BDY.

POINT NUMBER COORDINATE TABLE

I.R. 570-1-5.11	(F.I.S.H. 68-4)	I.R.C. 570: COLLAMER	INTERCHANGE TO	PIN:
I.R. 570-1-5.12	(F.I.S.H. 68-4)	NORTHERN BLVD.	(S.H. 82-7)	
I.R. 570-1-5.13		I.R.C. 570: NORTHERN	BLVD. TO	
I.R. 570-1-5.2	(F.I.S.H. 70-7)	BEAR ROAD	(S.H. 83-6)	TOWN:
I.R. 505-3-3.1	(F.A.S.H. 54-3)	I.R. 505-3-4.1	(F.I.S.H. 57-6)	VILLAGE:
				COUNTY:

3501.90 BRIDGES

ONONDAGA

CULVERTS ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED I-81 VIADUCT PROJECT - PHASE 1, CONTRACT HIGHWAY BOUNDARY PLAN

CONTRACT NUMBER D900054

DRAWING NO.: 350190\_C1-HBP SHEET NO.: 22



	5011:3		ABER COORDINA	
11	POINT	NORTHING	EASTING 041530 534	DESCRIPTION
	3075 3076	1127441.380 1119036.744	961538.534 962015.885	HWY. BDY. HWY. BDY. W/O
11	3077	1119037.238	961977.741	HWY. BDY. W/O
	3078	1119485.628	961953.334	HWY. BDY. W/O
	3079	1119467.611	961661.292	HWY. BDY. W/O
	3080	1119569.777	961648.454	HWY. BDY. W/O
	3081	1120203.767	961624.321	HWY. BDY. W/O
	3082 3083	1120606.248 1120636.562	961553.425 961537.505	HWY. BDY. W/O
H	3084	1121096.730	961058.012	HWY. BDY. W/O
	3085	1121454.452	961035.725	HWY. BDY. W/O
	3086	1121538.489	960898.020	HWY. BDY. W/O
	3091	1121839.942	962551.478	HWY. BDY. W/O
Ш	3092	1121701.451	962452.599	HWY. BDY. W/O
Ш	3093 3094	1121072.763 1120846.287	962493.792 962262.692	HWY. BDY. W/O HWY. BDY. W/O
'I	3095	1120649.272	962130.169	HWY. BDY. W/O
	3096	1120211.892	961922.544	HWY. BDY. W/O
ıl.	3097	1119594.505	961946.043	HWY. BDY. W/O
Ш	3098	1119486.020	961959.675	HWY. BDY. W/O
Ш	3099	1122751.135	962281.563	HWY. BDY. W/O
	3100 3101	1123285.316 1123516.158	961952.241 961905.244	HWY. BDY. W/O
	3102	1123635.627	961898.499	HWY. BDY. W/O
Ш	3103	1124049.925	961900.434	HWY. BDY. W/C
Ш	3104	1124218.787	961876.944	HWY. BDY. W/C
	3105	1124996.944	961850.535	HWY. BDY. W/C
	3106	1126050.397 1127858.330	961837.552 962174.593	HWY. BDY. W/C
	3108 3109	1127837.174	962174.593	HWY. BDY. W/C
H	3110	1126044.562	961586.461	HWY. BDY. W/C
Ш	3111	1124384.692	961606.932	HWY. BDY. W/C
Ш	3112	1123765.220	961587.715	HWY. BDY. W/C
	3113	1123241.070	961509.163	HWY. BDY. W/C
Ш	3114 3115	1123055.775 1122952.443	961414.656 961359.899	HWY. BDY. W/C
Ш	3116	1122888.371	961300.388	HWY. BDY. W/C
<u>'</u>	3117	1122784.757	961201.843	HWY. BDY. W/C
	3118	1127530.898	962110.012	HWY. BDY.
ıl	3119	1127461.376	961847.146	2022 FEE ACQ
Ш	3120	1127462.820	961870.669	2022 FEE ACQ
	3121 3122	1127512.650 1127510.881	961870.675 961847.483	2022 FEE ACQ 2022 FEE ACQ
	3123	1127670.032	961870.695	2022 FEE ACQ
	3124	1127670.850	961935.690	2022 FEE ACQ
Ш	3125	1127850.542	961935.429	2022 FEE ACQ
Ш	3126	1127847.752	961849.773	2022 FEE ACQ
	3127	1115136.184	962529.742	PERMANENT EASEN
	3128 3129	1115313.004 1115371.494	962525.772 962525.801	PERMANENT EASEN PERMANENT EASEN
ıl	3130	11157371.494	962464.734	PERMANENT EASEN
11	3131	1116070.077	962442.908	PERMANENT EASEN
П	3132	1116071.541	962471.030	PERMANENT EASEN
	3133	1116415.545	962443.816	PERMANENT EASEN
Ш	3134	1116484.715	962515.709	PERMANENT EASEN
Ш	3135	1116622.553	962398.170	PERMANENT EASEN
Ш	3136 3137	1116622.342 1116672.592	962513.287 962513.163	PERMANENT EASEN PERMANENT EASEN
	3137	1116672.881	962387.979	PERMANENT EASEN
	3139	1117333.542	961929.278	PERMANENT EASEN
	3140	1117418.404	962217.025	HWY. BDY.
	3141	1119038.096	961911.375	PERMANENT EASEN
	3142	1119480.446	961869.341	PERMANENT EASEN

	POINT NUN	/IBER COORDINA	TE TABLE
POINT	NORTHING	EASTING	DESCRIPTION
3143	1119466.887	961649.465	PERMANENT EASEMENT
3144	1120308.694	961968.504	PERMANENT EASEMENT
3145	1120258.355	961992.986	PERMANENT EASEMENT
3146	1119934.120	962572.053	PERMANENT EASEMENT
3147	1119864.765	962532.419	PERMANENT EASEMENT
3148	1120178.729	961971.442	PERMANENT EASEMENT
3149	1120176.918	961923.877	PERMANENT EASEMENT
3150	1123844.592	961988.566	PERMANENT EASEMENT
3151	1123940.940	962042.630	PERMANENT EASEMENT
3152	1123938.036	961950.868	PERMANENT EASEMENT
3153	1127857.034	962134.783	PERMANENT EASEMENT
3154	1127855.698	962093.778	PERMANENT EASEMENT
3155	1128126.414	962076.851	PERMANENT EASEMENT
3156	1128146.646	962075.744	PERMANENT EASEMENT
3157	1128139.536	961852.462	PERMANENT EASEMENT
3158	1128138.791	961852.474	PERMANENT EASEMENT
3159	1128118.679	961852.809	PERMANENT EASEMENT
		961502.005	PERMANENT EASEMENT
3160 3161	1128126.183 1128209.554	961502.005	PERMANENT EASEMENT
3161		961449.740	PERMANENT EASEMENT
3163	1128285.316 1128131.527	961499.966	HWY. BDY. W/OA
3164			
3164	1128106.577	961502.257 961497.179	HWY. BDY. W/OA HWY. BDY. W/OA
	1128502.700		
3166	1128623.425	961443.376	HWY. BDY. W/OA
3167	1128777.383	961068.968	HWY. BDY. W/OA
3168	1128908.401	960988.126	HWY. BDY. W/OA
3171	1129028.242	960981.958	HWY. BDY. W/OA
3172	1129238.928	960971.114	HWY. BDY. W/OA
3173	1129239.067	960969.172	HWY. BDY. W/OA
3174	1129423.421	961124.770	HWY. BDY. W/OA
3175	1129518.115	961337.079	HWY. BDY. W/OA
3176	1129546.509	961537.361	HWY. BDY. W/OA
3177	1129738.859	961535.631	HWY. BDY. W/OA
3181	1129750.511	961958.819	HWY. BDY. W/OA
3182	1129688.800	961984.029	HWY. BDY. W/OA
3183	1129562.728	962207.639	HWY. BDY. W/OA
3184	1129558.054	962353.983	HWY. BDY. W/OA
3192	1129534.683	961453.942	PERMANENT EASEMENT
3193	1129660.312	961536.338	PERMANENT EASEMENT
3196	1129737.481	961485.604	PERMANENT EASEMENT
3197	1129527.727	961404.877	PERMANENT EASEMENT
3198	1116238.595	962401.528	PERMANENT EASEMENT
3199	1116236.704	962436.017	PERMANENT EASEMENT
3200	1116291.293	962445.018	PERMANENT EASEMENT
3201	1116292.835	962398.346	PERMANENT EASEMENT
3202	1126019.814	932292.799	APROX. HWY. BDY.
3203	1126393.987	932294.333	APROX. HWY. BDY.
3204	1126738.734	932329.108	APROX. HWY. BDY.
3205	1126778.132	932286.081	APROX. HWY. BDY.
3206	1127018.291	932535.048	APROX. HWY. BDY.
3207	1126880.254	932955.737	APROX. HWY. BDY.
3208	1127130.136	933001.677	APROX. HWY. BDY.
3209	1127207.780	932762.721	APROX. HWY. BDY.
3210	1127252.189	932803.097	APROX. HWY. BDY.
3211	1127283.635	932911.616	APROX. HWY. BDY.
3212	1127331.702	932954.081	APROX. HWY. BDY.
3213	1127383.699	932984.381	APROX. HWY. BDY.
3214	1127388.775	933053.223	APROX. HWY. BDY.
3215	1127511.896	933106.984	APROX. HWY. BDY.
	1127552.455	933125.049	APROX. HWY. BDY.
3216	112/332.433		
	1127646.701	933333.679	APROX. HWY. BDY.
3216		933333.679 933400.041	APROX. HWY. BDY. APROX. HWY. BDY.

POINT	POINT NUN NORTHING	/IBER COORDINA EASTING	ATE TABLE  DESCRIPTION
3220	1128011.572	933399.184	APROX. HWY. BDY.
3220	1128011.572	933399.184	APROX. HWY. BDY.
		933419.908	
3222	1128386.353		APROX. HWY. BDY.
3223	1128566.308	933391.340	APROX. HWY. BDY.
3224	1128917.706	933587.614	APROX. HWY. BDY.
3225	1129725.991	934182.418	APROX. HWY. BDY.
3226	1130039.005	934423.877	APROX. HWY. BDY.
3227	1130246.370	934575.749	APROX. HWY. BDY.
3228	1130865.518	934958.685	APROX. HWY. BDY.
3229	1131209.823	935170.037	APROX. HWY. BDY.
3230	1131220.952	935200.380	APROX. HWY. BDY.
3231	1131514.734	935392.623	APROX. HWY. BDY.
3232	1131738.575	935540.164	APROX. HWY. BDY.
3233	1132068.549	935755.791	APROX. HWY. BDY.
3234	1132090.760	935758.377	APROX. HWY. BDY.
3235	1132210.440	935840.295	APROX. HWY. BDY.
3236	1132567.123	936102.435	APROX. HWY. BDY.
3237	1132701.995	936328.041	APROX. HWY. BDY.
3238	1132786.539	936540.864	APROX. HWY. BDY. APROX. HWY. BDY.
3239	1132723.941	936705.355	
3240	1132526.140	936110.271	PERMANENT EASEMENT
3241	1132259.335	935915.324	PERMANENT EASEMENT
3242	1130891.610	935210.551	APROX. HWY. BDY.
3243	1130845.623	935212.829	APROX. HWY. BDY.
3244	1130830.307	935048.542	APROX. HWY. BDY.
3245	1130605.319	934881.342	APROX. HWY. BDY.
3246	1130556.820	934910.029	APROX. HWY. BDY.
3247	1130539.767	934857.383	APROX. HWY. BDY.
3248	1130473.642	934853.614	APROX. HWY. BDY.
3249	1130366.937	934787.435	APROX. HWY. BDY.
3250	1130253.591	934784.649	APROX. HWY. BDY.
3251	1130101.090	934760.553	APROX. HWY. BDY.
3252	1130069.941	934738.392	APROX. HWY. BDY.
3253	1129971.922	934655.786	APROX. HWY. BDY.
		934632.839	
3254	1129933.472		APROX. HWY. BDY.
3255	1129895.931	934673.099	APROX. HWY. BDY.
3256	1129857.577	934680.160	APROX. HWY. BDY.
3257	1129783.935	934603.608	APROX. HWY. BDY.
3258	1129573.856	934517.763	APROX. HWY. BDY.
3259	1129473.677	934447.560	APROX. HWY. BDY.
3260	1129431.847	934321.385	APROX. HWY. BDY.
3261	1129456.547	934263.685	APROX. HWY. BDY.
3262	1129389.061	934113.894	APROX. HWY. BDY.
3263	1129263.293	934065.309	APROX. HWY. BDY.
3264	1129226.814	934069.124	APROX. HWY. BDY.
3265	1129225.329	934050.398	APROX. HWY. BDY.
3266	1129142.455	934008.268	APROX. HWY. BDY.
3267	1128986.389	933943.350	APROX. HWY. BDY.
3268	1128880.101	933978.097	APROX. HWY. BDY.
3269	1128683.167	933995.355	APROX. HWY. BDY.
3270	1128645.721	933945.355	APROX. HWY. BDY.
			APROX. HWY. BDY.
3271	1128638.998	933747.982	
3272	1128533.066	933680.309	APROX. HWY. BDY.
3273	1128508.467	933595.344	APROX. HWY. BDY.
3274	1128399.304	933557.969	APROX. HWY. BDY.
3275	1141945.154	944205.357	2022 FEE ACQ.
3276	1141937.904	944077.791	2022 FEE ACQ.
3277	1141954.544	944079.797	2022 FEE ACQ.
3278	1141961.628	944204.420	2022 FEE ACQ.
3279	1145506.638	947041.993	2022 FEE ACQ.
3280	1145509.052	947082.423	2022 FEE ACQ.
3281	1145510.578	947107.980	2022 FEE ACQ.
3282	1145528.028	947092.812	2022 FEE ACQ.

DOINT		ABER COORDINA	
POINT	NORTHING	EASTING	DESCRIPTION
3283	1145602.542	947028.038	2022 FEE ACQ.
3284	1145633.871	947003.310	2022 FEE ACQ.
3285	1145626.158	946991.415	2022 FEE ACQ.
3286	1145675.277	946970.629	2022 FEE ACQ.
3287	1146935.967	946404.948	2022 PERM. EASE. PROP
3288	1146936.794	946390.478	2022 PERM. EASE. PROP
3289	1147091.402	946380.909	2022 PERM. EASE. PROP
3290	1147161.434	946390.994	2022 PERM. EASE. PROP
3291	1145199.195	947378.658	2022 FEE ACQ.
3292	1139392.021	943522.261	HWY. BDY. W/OA
3293	1139730.531	943741.167	HWY. BDY. W/OA
3294	1140123.658	943936.811	HWY. BDY. W/OA
3295	1140883.592	944146.509	HWY. BDY. W/OA
3296	1141259.813	944122.105	HWY. BDY. W/OA
3297	1141726.774	944090.535	HWY. BDY. W/OA
3298	1141786.677	944087.128	HWY. BDY. W/OA
3299	1141936.378	944077.611	HWY. BDY. W/OA
3300	1142258.668	944126.387	HWY. BDY. W/OA
3301	1142594.431	944249.055	HWY. BDY. W/OA
3302	1142660.801	944274.131	HWY. BDY. W/OA
3303	1142747.148	944307.074	HWY. BDY. W/OA
3304	1142917.831	944421.593	HWY. BDY. W/OA
3305	1143408.227	944797.229	HWY. BDY. W/OA
3306	1143466.060	944840.308	HWY. BDY. W/OA
3307	1143719.913	945085.968	HWY. BDY. W/OA
3308	1143842.764	945261.822	HWY. BDY. W/OA
3309	1144349.677	946358.735	HWY. BDY. W/OA
3310	1144588.841	946975.159	HWY. BDY. W/OA
3311	1144626.446	947435.822	HWY. BDY. W/OA
3312	1144505.924	947876.898	HWY. BDY. W/OA
3313	1144462.235	948094.754	HWY. BDY. W/OA
3314	1144455.925	948087.126	HWY. BDY. W/OA
3315	1144320.190	948194.834	HWY. BDY. W/OA
3316	1144415.013	948318.325	HWY. BDY. W/OA
3317	1144243.234	949140.601	HWY. BDY. W/OA
3318	1144231.200	949273.421	HWY. BDY. W/OA
3319	1144182.948	949550.859	HWY. BDY. W/OA
3320	1143950.960	950530.665	HWY. BDY. W/OA
3321	1143825.977	951059.034	HWY. BDY. W/OA
3322	1143794.843	951203.467	HWY. BDY. W/OA
3323	1143774.843	951227.192	HWY. BDY. W/OA
3324	1143775.968	951294.751	HWY. BDY. W/OA
3325	11437752.936	951388.998	HWY. BDY. W/OA
3326	1143732.930		HWY. BDY. W/OA
3327	1143742.074	951389.596 951495.740	HWY. BDY. W/OA
3327	1143714.886	951495.740	HWY. BDY. W/OA
	1143728.656	951495.004	HWY. BDY. W/OA
3329			
3330	1143720.599	951651.049	HWY. BDY. W/OA
3331	1144012.922	951632.068	HWY. BDY. W/OA
3332	1144025.953	951631.619	HWY. BDY. W/OA
3333	1144037.989	951582.744	HWY. BDY. W/OA
3334	1144077.702	951410.098	HWY. BDY. W/OA
3335	1144252.675	950649.324	HWY. BDY. W/OA
3336	1144273.995	950509.470	HWY. BDY. W/OA
3337	1144335.023	950122.334	HWY. BDY. W/OA
3338	1144408.207	949930.255	HWY. BDY. W/OA
3339	1144488.550	949591.574	HWY. BDY. W/OA
3340	1144534.471	949395.500	HWY. BDY. W/OA
3341	1144584.142	949392.186	HWY. BDY. W/OA
3342	1144566.564	949166.629	HWY. BDY. W/OA
3343	1144575.524	949117.185	HWY. BDY. W/OA
3344	1144701.353	949106.413	HWY. BDY. W/OA
3345	1144682.719	948811.902	HWY. BDY. W/OA

I.R. 570-1-5.11	(F.I.S.H. 68-4)	I.R.C. 570: COLLAMER I	INTERCHANGE TO	PIN:
I.R. 570-1-5.12	(F.I.S.H. 68-4)	NORTHERN BLVD.	(S.H. 82-7)	
I.R. 570-1-5.13		I.R.C. 570: NORTHERN E	BLVD. TO	
I.R. 570-1-5.2	(F.I.S.H. 70-7)	BEAR ROAD	(S.H. 83-6)	
I.R. 505-3-3.1	(F.A.S.H. 54-3)	I.R. 505-3-4.1	(F.I.S.H. 57-6)	VILLAGE+
				COUNTY:

3501.90 BRIDGES ONONDAGA

CULVERTS ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED I-81 VIADUCT PROJECT - PHASE 1, CONTRACT HIGHWAY BOUNDARY PLAN

CONTRACT NUMBER D900054

DRAWING NO.: 350190\_C1-HBP SHEET NO.: 23



+ POINT NUMBER COORDINATE TABLE POINT NORTHING EASTING 1144921.530 947890.055 3347 3348 1145344.806 947110.477 3349 1145915.782 946868.853 3350 1146334.030 946762.814 1147285.971 946683.860 3351 3352 1148082.503 946634.563 3353 1147736.622 946355.395 3354 1147267.439 946384.433 1146739.450 946417.110 3355 3356 1146385.794 946368.864 3357 1146083.087 946235.187 1145854.277 945947.314 3358 3359 | 1145520.951 | 945175.762 | 1145403.152 944912.042 3360 3361 1145623.428 944824.844 1145811.489 944814.400 3362 3363 1145010.850 944213.121 3364 1145082.255 944278.415 3365 1144872.613 944659.218 3366 1144573.017 944699.491 3367 1143903.836 944773.727 1143791.475 944694.575 3368 1143486.164 944478.346 3369 1143004.279 944110.042 3370 3371 1142942.224 944093.402 3372 1142804.663 944057.098 3373 1142734.244 943963.470 1142662.933 943967.920 3375 1142535.129 943915.346 3376 1142392.029 943882.420 3377 1142238.490 943842.074 3378 | 1141941.198 | 943862.991 | 3379 1141924.225 943863.956 3380 1141922.465 943833.006 1141802.658 943839.821 1141742.642 943841.232 3382 3383 1141622.892 943849.045 3384 1141593.111 943853.744 3385 1141568.151 943855.163 1141443.410 943863.260 3386 3387 1141383.563 943867.666 3388 1141245.786 943875.503 3389 1140733.982 943805.455 1140221.048 943652.179 3390 3391 | 1139786.892 | 943437.663 | 3392 1153019.119 946338.867 3393 1152354.936 946344.416 3394 1149406.886 946547.002 1149356.549 946550.386 3395 3396 1148288.095 946620.589 3397 1148229.198 946624.455 3398 | 1147947.812 | 946397.344 | 1147884.744 946346.439 3399 3400 1149336.881 946251.031 3401 1149535.969 946237.429 1149532.152 946185.226 3402 3403 1152335.617 946004.942 1152338.359 946044.848 3404 3405 1153002.542 946039.299 1143671.630 951696.937 3406 3407 1143559.029 952170.356 3408 1143476.116 952453.494 3409 | 1143401.309 | 952646.102 |

DESCRIPTION

HWY. BDY. W/OA

HWY. BDY. W/OA

HWY. BDY. W/OA

HWY. BDY. W/OA

HWY, BDY, W/OA

HWY. BDY. W/OA

HWY BDY W/OA

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HWY, BDY, W/OA

HWY. BDY. W/OA

HWY BDY W/OA

HWY. BDY. W/OA

	DOINT NUM	ADED COODDINA	TE TADI E
POINT	NORTHING	IBER COORDINA EASTING	DESCRIPTION
3410	1143298.492	952880.078 953005.118	HWY. BDY. W/OA
3411	1143186.747 1143032.099		HWY. BDY. W/OA HWY. BDY. W/OA
3412 3413	1143032.099	953131.645 953255.414	HWY. BDY. W/OA
3414	1142728.041	953404.926	HWY. BDY. W/OA
			HWY. BDY. W/OA
3415	1142548.421	953585.732	HWY. BDY. W/OA
3416	1142534.543	953619.210	
3417	1142550.598	953857.430	HWY. BDY. W/OA HWY. BDY. W/OA
3418	1143300.567	953690.855	
3419	1143766.053	953548.197	HWY. BDY. W/OA
3420	1143670.078	953426.442	HWY. BDY. W/OA
3421	1143682.224	953267.929	HWY. BDY. W/OA
3422	1143744.072	952890.191	HWY. BDY. W/OA
3423	1143846.633	952602.111	HWY. BDY. W/OA
3424	1143943.289	952543.952	HWY. BDY. W/OA
3425	1143896.292	952434.420	HWY. BDY. W/OA
3426	1143894.960	952213.738	HWY. BDY. W/OA
3427	1144016.728	951675.214	HWY. BDY. W/OA
3428	1142633.576	944330.556	HWY. BDY.
3429	1142604.983	944383.645	HWY. BDY.
3430	1142580.327	944427.327	HWY. BDY.
3431	1142554.532	944476.271	HWY. BDY.
3432	1142550.661	944571.382	HWY. BDY.
3433	1142678.132	944445.080	HWY. BDY.
3434	1144094.540	947901.492	HWY. BDY.
3435	1144054.667	947932.153	HWY. BDY.
3436	1144155.883	948062.791	HWY. BDY.
3437	1144207.283	948145.995	HWY. BDY.
3438	1144241.704	948217.551	HWY. BDY.
3439	1144264.139	948299.023	HWY. BDY.
3440	1144080.594	949149.152	HWY. BDY.
3441	1143640.083	949177.366	HWY. BDY.
3442	1143643.326	949226.760	HWY. BDY.
3443	1143746.349	949222.979	HWY. BDY.
3444	1143887.821	949237.491	HWY. BDY.
3445	1144073.231	949280.190	HWY. BDY.
3446	1143649.799	951012.166	HWY. BDY.
3447	1143692.984	951056.030	HWY. BDY.
3448	1143719.522	951091.183	HWY. BDY.
3449	1143760.063	951150.216	HWY. BDY.
3450	1143628.899	951080.343	HWY. BDY.
3451	1143661.670	951133.776	HWY. BDY.
3452	1143683.535	951184.746	HWY. BDY.
3453	1143699.786	951226.470	HWY. BDY.
3454	1143705.665	951276.764	HWY. BDY.
3455	1143699.133	951336.541	HWY. BDY.
3456	1143685.613	951392.700	HWY. BDY.
3457	1143639.614	951395.230	HWY. BDY.
3458	1143673.494	951444.021	HWY. BDY.
3459	1143673.494	951444.021	HWY. BDY.
3460	1143667.239	951475.317	HWY. BDY.
3461	1143638.745	951598.695	HWY. BDY.
3462	1143618.880	951631.473	HWY. BDY.
3463	1143602.262	951639.462	HWY. BDY.
3464	1143580.192	951654.887	HWY. BDY.
3465	1143548.232	951660.504	HWY. BDY.
3466	1143603.699	951714.612	HWY. BDY.
3467	1143602.870	951701.218	HWY. BDY.
3468	1143523.021	951706.195	HWY. BDY.
3469	1143524.824	951735.140	HWY. BDY.
3470	1143459.956	951739.174	HWY. BDY.
3471	1143458.154	951710.229	HWY. BDY.
3472	1143970.221	952606.720	HWY. BDY.

		POINT NUN	IBER COORDINA	ATE TABLE
Ī	POINT	NORTHING	EASTING	DESCRIPTION
Ī	3473	1144046.784	952687.000	HWY. BDY.
ı	3474	1144048.850	952717.171	HWY. BDY.
ľ	3475	1144073.923	952715.321	HWY. BDY.
ı	3476	1144206.036	952852.878	HWY. BDY.
ı	3477	1144239.589	953383.380	HWY. BDY.
ı	3478	1147707.014	946357.228	HWY. BDY.
ŀ	3479	1147601.782	946246.565	HWY. BDY.
ŀ	3480	1147173.792	945901.124	HWY. BDY.
f	3481	1147310.528	945882.978	HWY. BDY.
ŀ	3482	1147956.799	946642.342	HWY. BDY.
f	3483	1148414.097	946921.477	HWY. BDY.
f	3484	1148421.184	946907.920	HWY. BDY.
ŀ	3485	1148559.472	946891.027	HWY. BDY.
ŀ	3486	1149380.676	946548.287	HWY. BDY.
f	3487	1149415.983	946956.372	HWY. BDY.
ŀ	3488	1149391.325	946958.506	HWY. BDY.
ŀ	3489	1142439.669	944740.365	HWY. BDY.
ŀ	3490	1142398.730	944713.475	HWY. BDY.
ŀ	3491	1142798.752	943980.800	HWY. BDY.
ŀ	3492	1142744.666	943907.120	HWY. BDY.
H	3493	1142731.457	943736.639	HWY. BDY.
ŀ	3494	1141965.969	944280.799	PROPERTY LOT LINE
ŀ	3495	1141954.558	944370.793	PROPERTY LOT LINE
ŀ	3496	1145193.589	947388.983	PROPERTY LOT LINE
ŀ	3497	1145331.485	947531.835	PROPERTY LOT LINE
ŀ	3498	1145524.287	947337.544	PROPERTY LOT LINE
ŀ	3499	1145517.043	947216.245	PROPERTY LOT LINE
ŀ	3500	1145657.034	947235.943	PROPERTY LOT LINE
ŀ	3501	1145677.394	947174.588	PROPERTY LOT LINE
ŀ	3502	1145714.460	947127.598	PROPERTY LOT LINE
ŀ	3503	1145773.730	947091.640	PROPERTY LOT LINE
ŀ	3504	1145715.603	946953.564	PROPERTY LOT LINE
ŀ	3505	1142546.366	953384.495	PERMANENT EASEMENT
H		1143974.894	952359.211	PERMANENT EASEMENT
ŀ	3506 3507	1144048.105	952480.883	PERMANENT EASEMENT
ŀ			953190.571	PERMANENT EASEMENT
H	3508	1142593.233		
-	3509	1143262.110	952050.607	PERMANENT EASEMENT
-	3510	1143467.797	951865.186	PERMANENT EASEMENT
ŀ	3511	1143467.493	951860.195	PERMANENT EASEMENT
-	3512	1143532.360	951856.151	PERMANENT EASEMENT
ŀ	3513	1144110.978	951265.385	PERMANENT EASEMENT
H	3514	1144162.499	951243.043	PERMANENT EASEMENT
-	3515	1144131.619	951175.677	PERMANENT EASEMENT
ŀ	3516	1144987.356	947806.774	PERMANENT EASEMENT
F	3517	1145289.285	947177.406	PERMANENT EASEMENT
-	3518	1145931.370	946905.690	PERMANENT EASEMENT
F	3519	1146343.860	946801.587	PERMANENT EASEMENT
F	3520	1145143.777	947228.123	PERMANENT EASEMENT
	3521	1145207.392	947201.203	PERMANENT EASEMENT
ļ	3522	1145204.156	947213.431	PERMANENT EASEMENT
ļ	3523	1145254.494	947192.129	PERMANENT EASEMENT
L	3524	1144965.028	947795.518	PERMANENT EASEMENT
- 1	3526	1143394.710	952096.853	PERMANENT EASEMENT
⊢	3527	1143524.824	951735.140	PERMANENT EASEMENT
ļ				
	3528 3529	1143459.956 1143539.202	951739.174 951965.933	PERMANENT EASEMENT PERMANENT EASEMENT

POINT NUMBER COORDINATE TABLE

I.R. 570-1-5.11		I.R.C. 570: COLLAMER	INTERCHANGE TO	PIN:
I.R. 570-1-5.12	(F.I.S.H. 68-4)	NORTHERN BLVD.	(S.H. 82-7)	
I.R. 570-1-5.13		I.R.C. 570: NORTHERN	BLVD. TO	
I.R. 570-1-5.2	(F.I.S.H. 70-7)	BEAR ROAD	(S.H. 83-6)	TOWN:
I.R. 505-3-3.1	(F.A.S.H. 54-3)	I.R. 505-3-4.1	(F.I.S.H. 57-6)	VILLAGE:
				COUNTY:

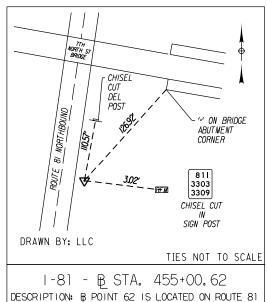
3501.90 BRIDGES CULVERTS ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

[-81 VIADUCT PROJECT - PHASE 1, CONTRACT HIGHWAY BOUNDARY PLAN

CONTRACT NUMBER
D900054

DRAWING NO.: 350190\_C1-HBP SHEET NO.: 24



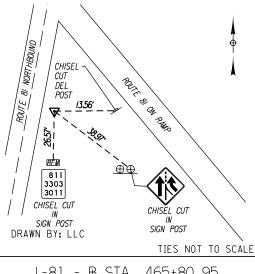


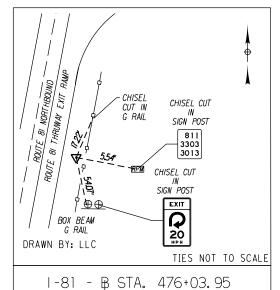
AT RM 81/3303/3009

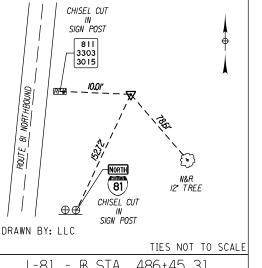
E٠

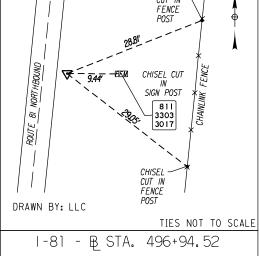
1125831.6407

931402, 4021









I-81 - B STA. 486+45.31

CHISEL CUT DEL POST

DESCRIPTION: B POINT 65 IS LOCATED ON ROUTE 81 DESCRIPTION: \$ POINT 66 IS LOCATED ON ROUTE 81 AT RM 81/3303/3015 AT RM 81/3303/3017

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1128441.1093 1129285.0307 N٥ 933155.8244 933779, 2441

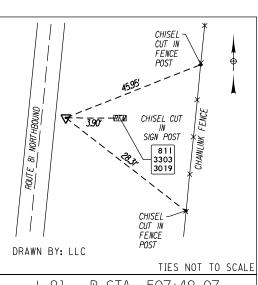
EXIT

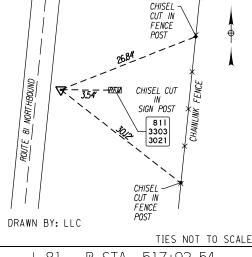
NYSPCS CENTRAL ZONE NAD 83/CORS 2011

I-81 - B STA. 465+80.95 DESCRIPTION: B POINT 63 IS LOCATED ON ROUTE 81 25 ± NORTH OF RM 81/3303/3011 NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1126743. 2493

931982. 1276

DESCRIPTION: B POINT 64 IS LOCATED ON ROUTE 81 AT RM 81/3303/3013 NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1127594. 7294 932549. 1375 N٥





EXIT CHISEL IN END OF METAL 40 MPH RAILING CHISEL FENCE - CHISEL CUT DEL CHISEL CUT IN FENCE DRAWN BY: LLC TIES NOT TO SCALE

27 CHISEL CUT IN SIGN POST G RAIL CUT IN GR POST DRAWN BY: LLC

TIES NOT TO SCALE I-81 - β STA. 539+17.54

DESCRIPTION: B POINT 70 IS LOCATED BETWEEN ROUTE 81 AND THE MATTYDALE EXIT RAMP

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1132787.6853 E: 936133,7515

~B\_ / CHISEL CUT IN LIGHT POLE CHISEL CUT IN TS BASE CHISEL CUT IN LIGHT POLE DRAWN BY: LLC TIES NOT TO SCALE

I-81 - B STA. 547+59.06

DESCRIPTION: B POINT 71 IS LOCATED AT THE INTERSECTION OF ROUTE 11 AND THE MATTYDALE EXIT RAMP

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1133182.3900 936876, 9627

I-81 - B STA. 507+48.07

DESCRIPTION: P POINT 67 IS LOCATED ON ROUTE 81 AT RM 81/3303/3019

> NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1130124, 4600 N: 934415, 8977

I-81 - В STA. 517+93.54 DESCRIPTION: B POINT 68 IS LOCATED ON ROUTE 81 AT RM 81/3303/3021 NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1131007.9548

934974. 8564

DESCRIPTION: B POINT 69 IS LOCATED ON ROUTE 81, 100 FT: SOUTH OF EXIT 40 MPH SIGN NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1131987.5020 935594.8081

I-81 - B STA. 529+52.79

(F.1.S.H. 68-4) I.R.C. 570: COLLAMER INTERCHANGE TO I.R. 570-1-5.12 I.R. 570-1-5.13 (F.I.S.H. 68-4) NORTHERN BLVD. (S.H. 82-7) (F.I.S.H. 68-4) I.R.C. 570: NORTHERN (F.I.S.H. 70-7) BEAR ROAD (F.A.S.H. 54-3) I.R. 505-3-4.1 BL VD. TO I.R. 570-1-5.2 I.R. 505-3-3.1

3501.90 BRIDGES

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED I-81 VIADUCT PROJECT - PHASE 1, CONTRACT CONTRACT NUMBER D900054

DRAWING NO.: 350190\_C1-HBP HIGHWAY BOUNDARY PLAN SHEET NO.: 25

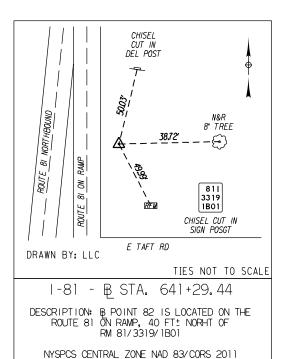
> NEW YORK Department of Transportation

(F.I.S.H. 57-6) VILLAGE:

COUNTY: ONONDAGA

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

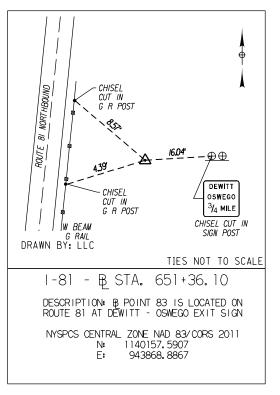
+

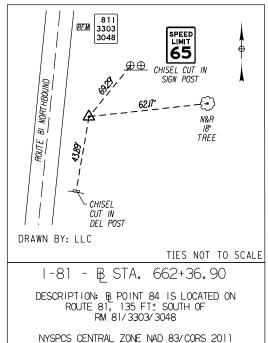


1139275.1300

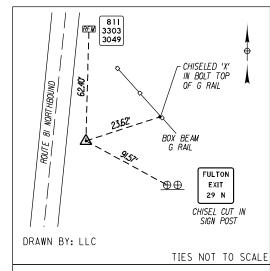
943384.5140

+





1141239.7955



| 1-81 - B STA. 668+38.26 | DESCRIPTION: B POINT 85 IS LOCATED ON ROUTE 81, | 60 FT: SOUTH OF RM 81/3303/3049

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1141840.7191 E: 944047.4628

7027 GPS 870

CHISEL CUT IN DELINEATOR POST

> 25 MPH

CHISEL CUT IN

SIGN POST

EXIT 29 N

3303 3058

10531

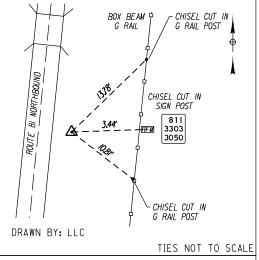
SIGN

EXIT

29 S

CHISEL CUT IN SIGN POST

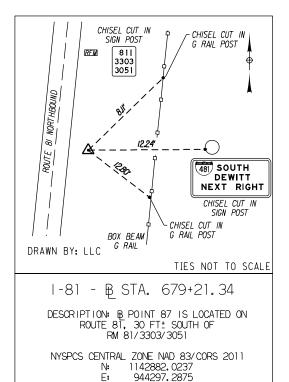
DRAWN BY: LLC

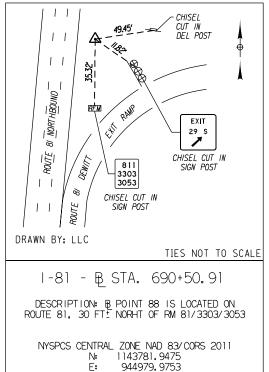


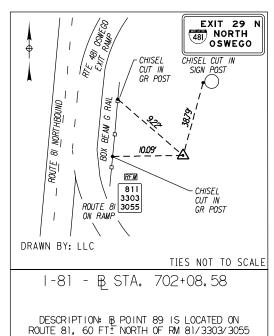
I-81 - ₿ STA. 674+17.77

DESCRIPTION: B POINT 86 IS LOCATED ON ROUTE 81 AT RM 81/3303/3050

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1142417.5991 E: 944102.6355



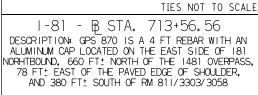




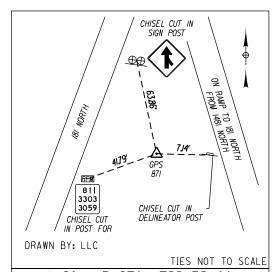
NYSPCS CENTRAL ZONE NAD 83/CORS 2011

1144690.0647

945697.9711



NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1145600.5710 E: 946397.1390



I-8] - B STA. 722+53.44

DESCRIPTION: GPS 871 IS A 4 FT REBAR WITH AN ALUMINUM CAP LOCATED ON THE WESTERLY SIDE OF THE ON RAMP LEADING TO 181 NORTH FROM 1481 NORTH, 40 FT: EAST OF RM 811/3303/3059, AND 1600 FT: NORTH OF THE 1481 OVERPASS

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1146465, 6420 E: 946633, 8970

I.R. 570-1-5.11	(F.I.S.H. 68-4)	I.R.C. 570: COLLAMER	INTERCHANGE TO	PIN:
I.R. 570-1-5.12		NORTHERN BLVD.	(S.H. 82-7)	L lin!
I.R. 570-1-5.13	(F.I.S.H. 68-4)	I.R.C. 570: NORTHERN	BLVD. TO	
I.R. 570-1-5.2	(F.I.S.H. 70-7)	BEAR ROAD	(S.H. 83-6)	TOWN:
I.R. 505-3-3.1	(F.A.S.H. 54-3)	I.R. 505-3-4.1	(F.I.S.H. 57-6)	VILLAGE.
				COUNTY:

IN: 3501.90 BRIDGES

DWN:

AGE:

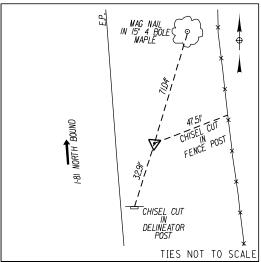
ONONDAGA

S CUL VERTS

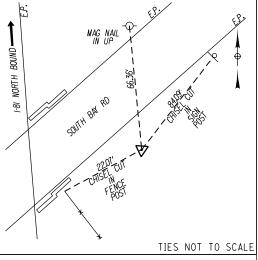
L-81 VIADUCT PROJECT - PHASE 1, CONTRACT

CONTRACT NUMBER
D900054

HIGHWAY BOUNDARY PLAN DRAWING NO.: 350190\_C1-HBP SHEET NO.: 26

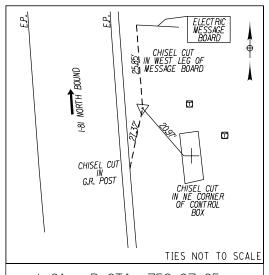


I-81 - B STA. 730+06.34 DESCRIPTION: B POINT 400 IS A 36" LONG REBAR WITH ALUMINUM CAP AND IS LOCATED ON THE EAST SIDE OF 1-81 NORTH 206' FT NORTH OF RM 811/3303/3060. NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1147218, 5422 946631.5070



I-81 - В STA. 738+97.07 DESCRIPTION: B POINT 401 IS A 36" LONG REBAR WITH ALLMINUM CAP AND IS LOCATED OFF THE SOUTH SIDE OF SOUTH BAY RD 21' FT EAST OF THE OVERPASS BRIDGE JOINT

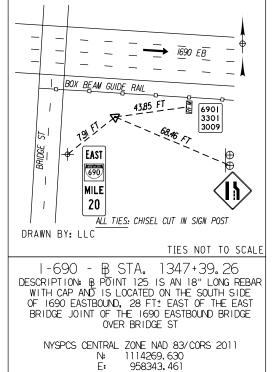
SPEED LIMIT CHISEL CUT TIES NOT TO SCALI I-81 - B STA. 746+07.12 DESCRIPTION: B POINT 402 IS A 36" LONG REBAR WITH ALUMINUM CAP AND IS LOCATED ON THE EAST SIDE OF I-81 NORTH BOUND 730' FT NORTH OF THE SOUTH BAY RD OVERPASS. NYSPCS CENTRAL ZONE NAD 83/CORS 2011 NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1148109. 1431 1148810.8150 946507.8236 946616,6141

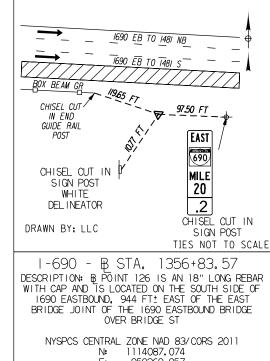


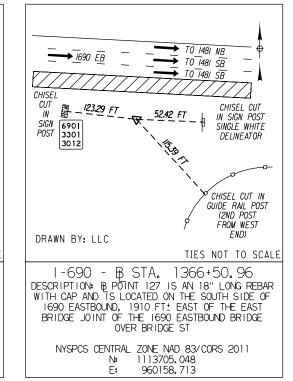
I-81 - B STA. 753+97.85 DESCRIPTION: B POINT 403 IS A 36" LONG REBAR WITH ALUMINUM CAP AND IS LOCATED ON THE EAST SIDE OF 1-81 NORTHBOUND 455± FT NORTH OF RM 811/3303/3064. NYSPCS CENTRAL ZONE NAD 83/CORS 2011

1149599, 8138 946455, 6366

## I-690 BASELINE TIES

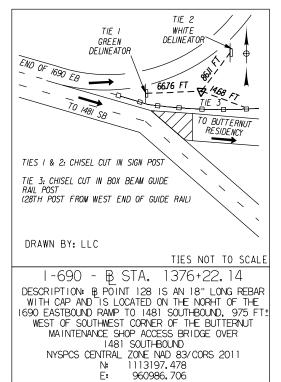






811 CHISEL CUT

3303 3064



I.R. 570-1-5.11	(F.I.S.H. 68-4)	I.R.C. 570: COLLAMER	INTERCHANGE TO	PIN:
I.R. 570-1-5.12	(F.I.S.H. 68-4)	NORTHERN BLVD.	(S.H. 82-7)	1 114
I.R. 570-1-5.13		I.R.C. 570: NORTHERN	BLVD. TO	
I.R. 570-1-5.2	(F.I.S.H. 70-7)		(S.H. 83-6)	TOW
I.R. 505-3-3.1	(F.A.S.H. 54-3)	I.R. 505-3-4.1	(F.I.S.H. 57-6)	VILLAGI
				COUNT

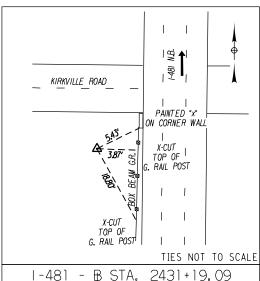
3501.90 BRIDGES ONONDAGA

CULVERTS ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED I-81 VIADUCT PROJECT - PHASE 1, CONTRACT HIGHWAY BOUNDARY PLAN

CONTRACT NUMBER D900054

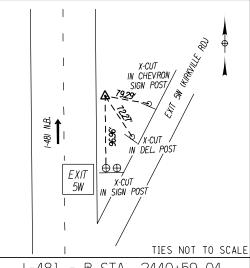
DRAWING NO.: 350190\_C1-HBP SHEET NO.: 27





I-481 - B STA. 2431+19.09 DESCRIPTION: B POINT G907 IS REBAR WITH ALLWINUM CAP LOCATED ON WESTERLY SIDE OF 1-481 NORTHBOUND AT SOUTH END OF BRIDGE OVER KIRKVILLE RD.

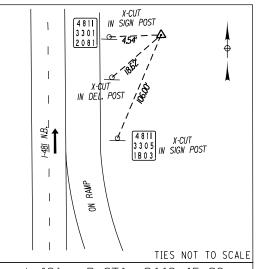
NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1121706.9800 961783, 5321



- В STA. 2440+59.04

DESCRIPTION: B POINT G908 IS REBAR WITH ALUMINUM CAP LOCATED ON EASTERLY SIDE I-481 NORTHBOUND 270 FT. SOUTH OF ROUTE MARKER 4811/3301/2080.

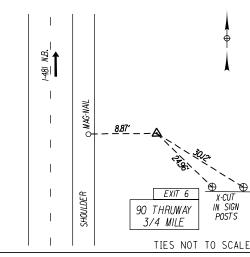
NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1122646, 0866 N: 961823, 3037



I-481 - В STA. 2448+45.20 DESCRIPTION: B POINT 241 IS REBAR WITH CAP LOCATED ON EAST SIDE I-481 NORTHBOUND AT

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1123431,9656 961844, 4088

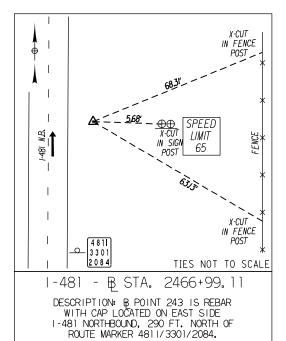
ROUTE MARKER 4811/3301/2081.



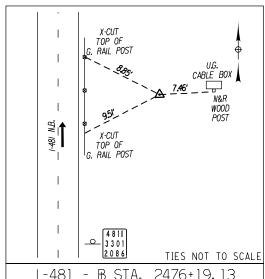
I-481 - В STA. 2457+79.17

DESCRIPTION: B POINT 242 IS REBAR WITH CAP LOCATED ON EAST SIDE I-481 NORTHBOUND, 25 FT. N.W. EXIT 6 SIGN

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1124365, 1208 N: 961805, 4386



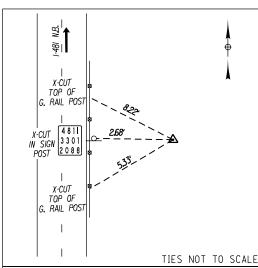
NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1125284.9352 961790.3517



- B STA. 2476+19.13 1-481

DESCRIPTION: B POINT 244 IS REBAR WITH CAP LOCATED ON EAST SIDE 1-481 NORTHBOUND, 150 FT. NORTH OF ROUTE MARKER 4811/3301/2086.

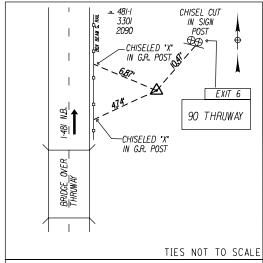
NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1126204.9028 961780.6502



I-481 - β STA. 2485+85.93

DESCRIPTION: B POINT 245 IS REBAR WITH CAP LOCATED ON EAST SIDE 1-481 NORTHBOUND AT ROUTE MARKER 4811/3301/2088.

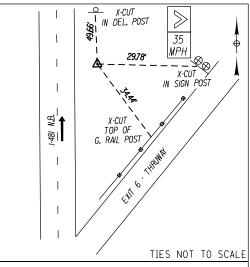
NYSPCS CENTRAL ZONE NAD 83/CORS 2011 112171.6473 961769, 8595



I-481 - BSTA. 2495+37.74

DESCRIPTION: B POINT 246 IS A REBAR WITH CAP AND IS LOCATED ON EAST SIDE I-481 NORTHBOUND, 90' ± SOUTH OF ROUTE MARKER 4811/3301/2090.

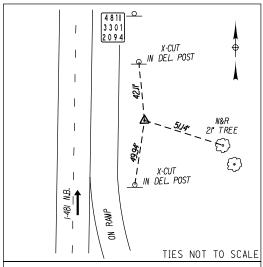
NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1128123.3781 961757.8513 N₃ E₃



I-481 - В STA. 2504+59.15

DESCRIPTION: B POINT 247 IS A REBAR WITH CAP LOCATED ON EAST SIDE I-481 NORTHBOUND, 180 FT. SOUTH OF ROUTE MARKER 4811/3301/2092.

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1129044.7019 E: 961744.7796



I-481 - B STA. 2514+02.59

DESCRIPTION: B POINT 248 IS REBAR WITH CAP LOCATED ON EAST SIDE OF I-481 NORTHBOUND, 290 FT. SOUTH OF ROUTE MARKER 4811/3301/2094.

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1129988.0787 961755. 1225

(F.I.S.H. 68-4) [	I.R.C. 570: COLLAMER IN	NTERCHANGE TO	PIN:
(F.].S.H. 68-4) N	NORTHERN BLVD.	(S.H. 82-7)	
	I.R.C. 570: NORTHERN B	LVD. TO	
(F.I.S.H. 70-7) E	BEAR ROAD	(S.H. 83-6)	
(F.A.S.H. 54-3) I	I.R. 505-3-4.1	(F.I.S.H. 57-6)	VILLAGE:
			COUNTY:

3501.90 BRIDGES

ONONDAGA

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED I-81 VIADUCT PROJECT - PHASE 1, CONTRACT HIGHWAY BOUNDARY PLAN

CONTRACT NUMBER D900054 DRAWING NO.: 350190\_C1-HBP

SHEET NO.: 29

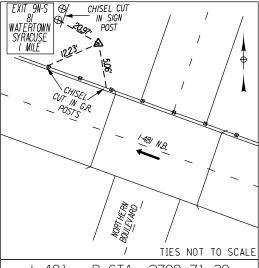
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.



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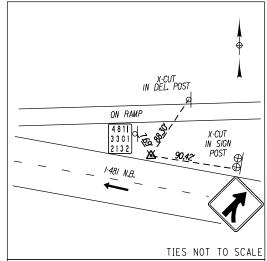
I-481 - B STA. 2700+.98.80 DESCRIPTION: B POINT 264 IS AN 18" REBAR WITH ALLMINUM CAP LOCATED ON I-481 NORTHBOUND AT ROUTE MARKER 4811/3301/2063.

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1114069, 4424 954382, 1163



I-481 - B STA. 2708+71.39 DESCRIPTION: B POINT 265 IS AN 18" REBAR WITH ALUMINUM CAP LOCATED ON THE NORTHEASTERLY SIDE OF ROUTE 481 NB, AT THE NORTH END OF THE BRIDGE OF NORTHERN BLVD

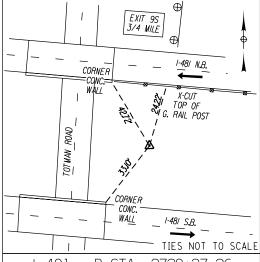
NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1143330.4878 953654.9702



I-481 - В STA. 2716+98.30

DESCRIPTION: B POINT 266 IS REBAR WITH ALUMINUM CAP COCATED ON THE NORTHERLY SIDE OF I-481 NORTHBOUND AT ROUTE MARKER 4811/3301/2132.

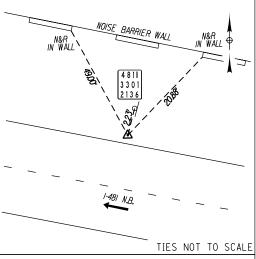
NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1143596.0553 952871.8600



1-481 - B STA. 2728+27.26

DESCRIPTION: B POINT 267 IS REBAR WITH ALUMINUM CAP LOCATED IN 1-481 MEDIAN, AT SOUTH EASTERLY END OF BRIDGES OVER TOTMAN ROAD.

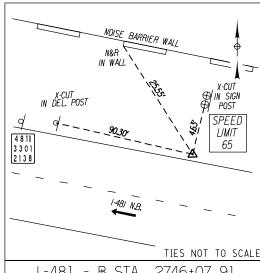
NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1143814.5681 951764.2508



I-481 - B STA. 2738+27.89

DESCRIPTION: B POINT 268 IS REBAR WITH ALUMINUM CAP LOCATED ON NORTHERLY SIDE OF I-481 NORTHBOUND, AT ROUTE MARKER 4811/3301/2136.

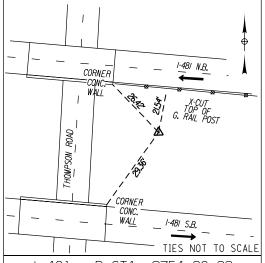
NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1144108.8184 950807, 8625



I-481 - В STA. 2746+07.91

DESCRIPTION: B POINT 269 IS REBAR WITH ALUMINUM CAP LOCATED ON NORTHERLY SIDE OF 1-481 NORTHBOUND, 275 FT. EAST OF AT ROUTE MARKER 4811/3301/2138.

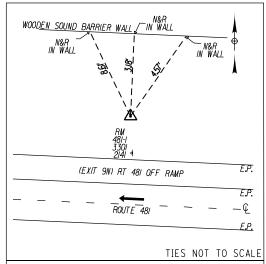
NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1144288.0496 E: 95048.7169



- B STA. 2754+30.33 1-481

DESCRIPTION: B POINT 270 IS REBAR WITH ALLMINUM CAP LOCATED IN 1-481 MEDIAN, AT EASTERLY END OF BRIDGES OVER THOMPSON ROAD.

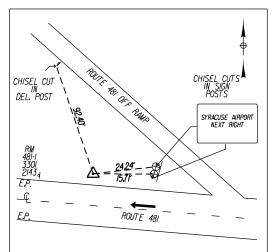
> NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1144412.9116 949235, 8293



I-481 - BSTA. 2764+48.71

DESCRIPTION: B POINT 271 IS A 30" LONG REBAR WITH CAP AND IS LOCATED ON ROUTE 481 AT ROAD MARKER 4811/3301/2141.

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1144730.8118 N: E: 948268, 3406

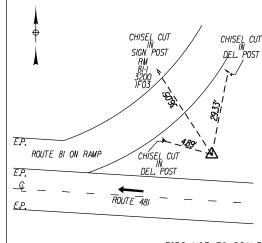


TIES NOT TO SCALE

I-481 - BSTA. 2773+06.71

DESCRIPTION: B POINT 272 IS A 30" LONG REBAR WITH CAP AND IS LOCATED ON ROUTE 481, 200' ± EAST OF ROAD MARKER 4811/3301/2143

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1144881.2051 E: 947423.6171



TIES NOT TO SCALE

I-481 - BSTA. 2779+49.62
DESCRIPTION: B POINT 273 IS A 30" LONG REBAR WITH CAP AND IS LOCATED ON ROUTE 481 ACROSS FROM ROAD MARKER 81-1/3200/1F03

NYSPCS CENTRAL ZONE NAD 83/CORS 2011 1144960, 4815 946785.6183

I.R.	570-1-5.11	(F.I.S.H. 68-4)	I.R.C. 570: COLLAMER	INTERCHANGE TO	PIN:
I.R.	570-1-5.12	(F.I.S.H. 68-4)	NORTHERN BLVD.	(S.H. 82-7)	
I.R.	570-1-5.13		I.R.C. 570: NORTHERN	BLVD. TO	
I.R.	570-1-5.2	(F.I.S.H. 70-7)	BEAR ROAD	(S.H. 83-6)	TOWN:
I.R.	505-3-3.1	(F.A.S.H. 54-3)	I.R. 505-3-4.1	(F.I.S.H. 57-6)	VILLAGE.
					COUNTY:

3501.90 BRIDGES TOWN:

ONONDAGA

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED I-81 VIADUCT PROJECT - PHASE 1, CONTRACT HIGHWAY BOUNDARY PLAN

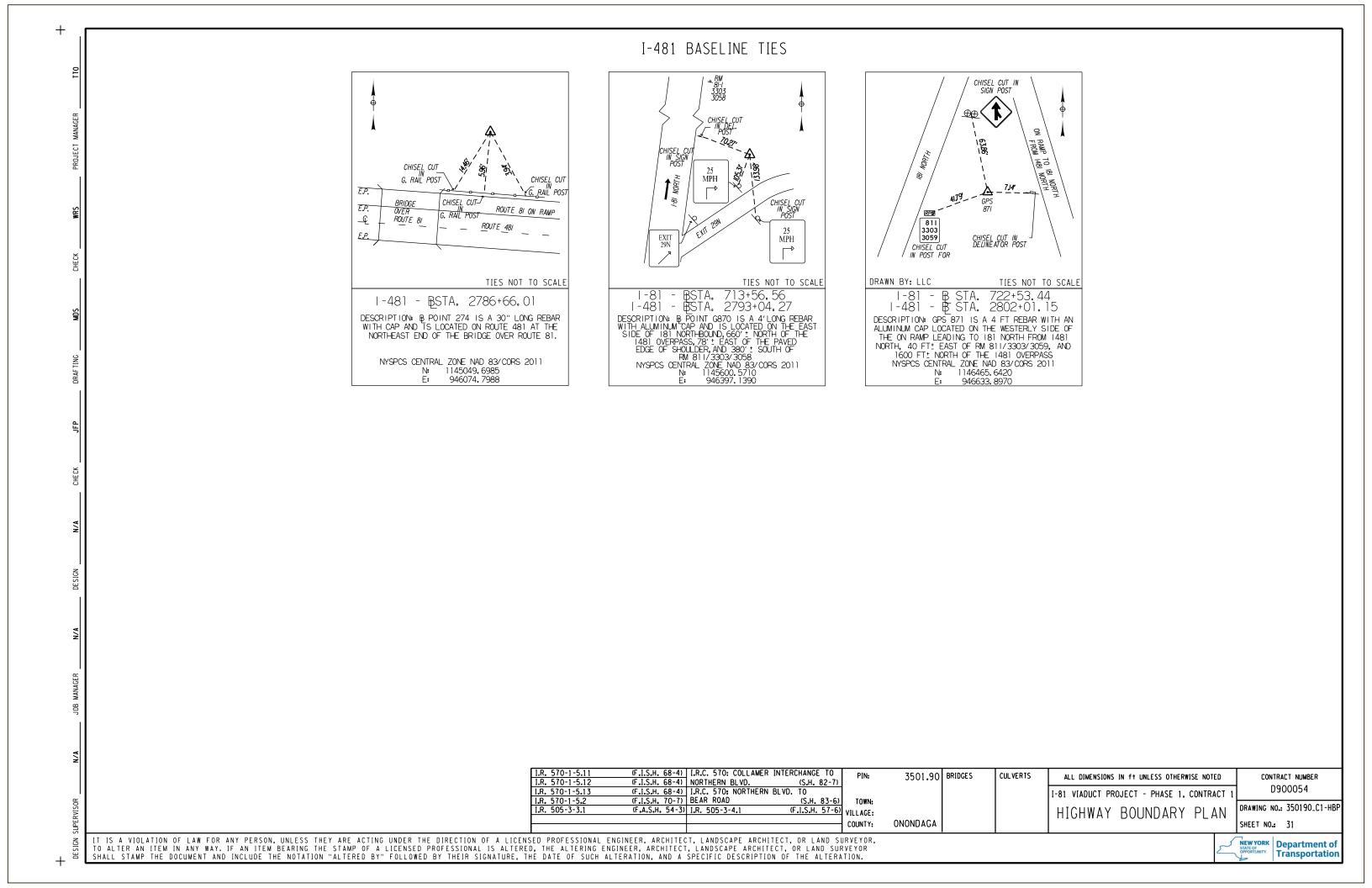
CONTRACT NUMBER D900054

DRAWING NO.: 350190\_C1-HBP SHEET NO.: 30

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.



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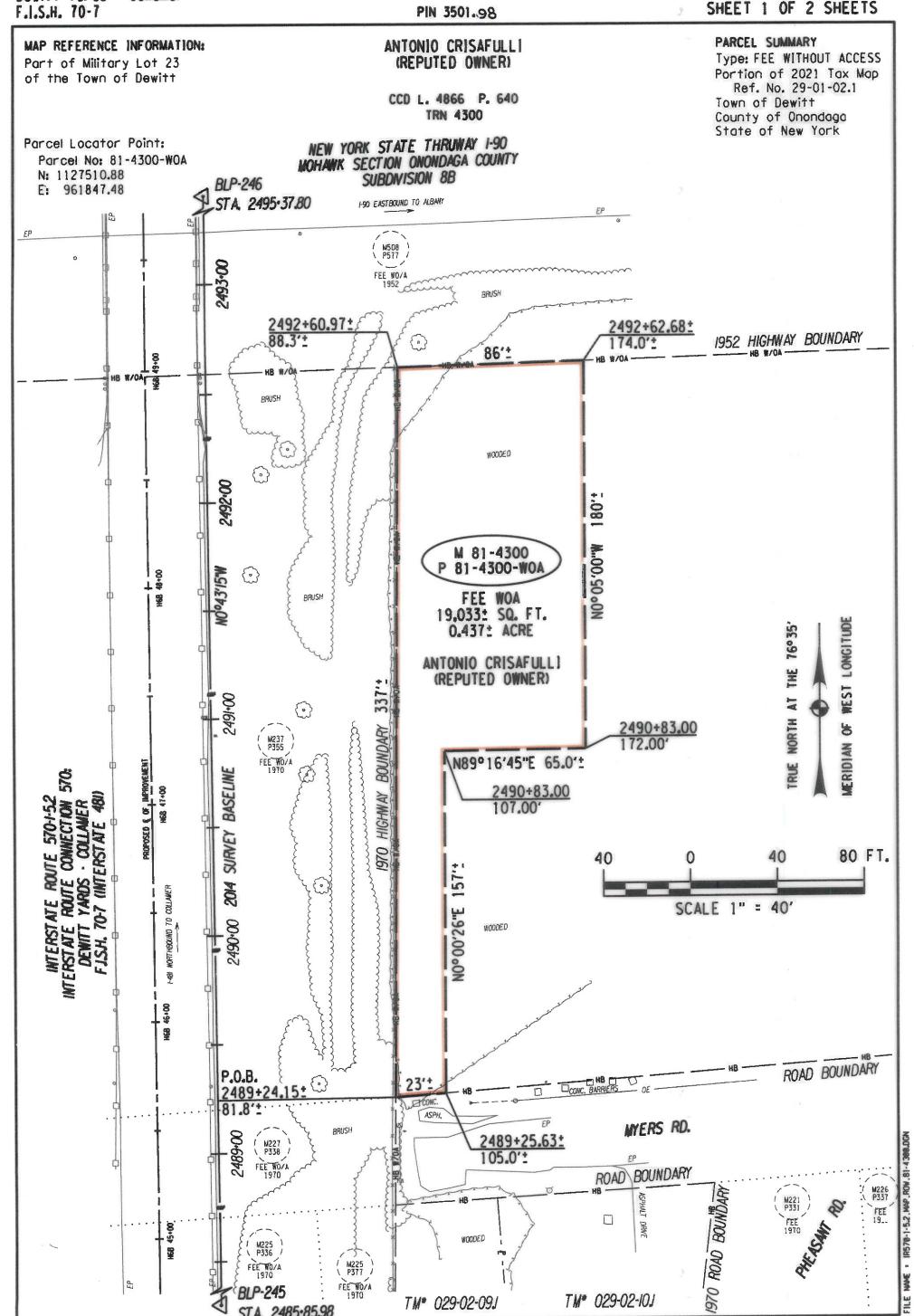
## **ROW Acquisition Maps**

1-81 VIADUCT PROJECT Interstate Route 570-1-5.2 Interstate Route Connection 570: Dewitt Yards - Collamer F.L.S.H. 70-7

ARM SHEET NO.: ARM-53

PREPARED BY

MAP NO. 81-4300 PARCEL NO. 81-4300-WOA SHEET 1 OF 2 SHEETS



BGP

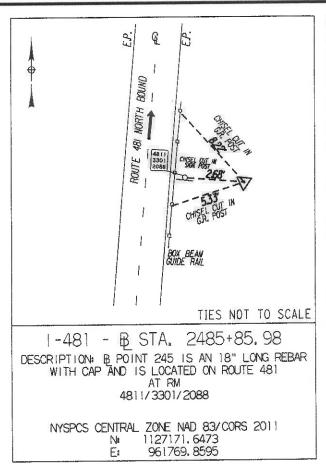
CHECKED BY

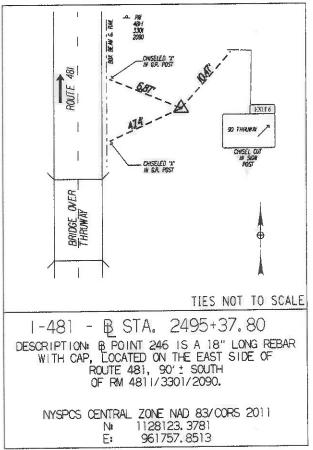
FINAL CHECK BY

1-81 VIADUCT PROJECT Interstate Route 570-1-5.2 Interstate Route Connection 570: Dewitt Yards - Collamer F.I.S.H. 70-7

PIN 3501.98

MAP NO. 81-4300 PARCEL NO. 81-4300-WOA SHEET 2 OF 2 SHEETS





All that piece or parcel of property designated as Parcel No. 81-4300-WOA, as shown on the accompanying map, to be acquired in Fee, without right of access to and from abutting property.

SUBJECT TO utility easements and right-of-ways of record heretofore conveyed affecting the above described properly.

I hereby certify that the property mapped above is necessary for this project, and the acquisition thereof is recommended.

Date NOVEMBER 12 20 21

George a. Doucatte fr.

George A. Doucette, Jr., P.E. Regional Design Engineer for the Regional Director of Transportation Region No. 3



"Unauthorized alteration of a survey map bearing a licensed land surveyor's seal is a violation of the New York State Education Law."

I hereby certify that this map was prepared in accordance with current NYSDOT policies, standards and procedures.

Date NOVEMBER 17, 20 21

Prudent Engineering LLP
Engineering and Land Surveying
By Bradley G. Pcolinsky, Land Surveyor
L.S. License No. 050697

### ANTONIO CRISAFULLI (REPUTED OWNER)

Map of property which the Commissioner of Transportation deems necessary to be acquired by appropriation in the name of the People of the State of New York in fee, without right of access to and from abutting property, except for the purposes of the rights described above, for purposes connected with the highway system of the State of New York pursuant to Sections 30 and 340-B of the Highway Law and the Eminent Domain Procedure Law.

There is excepted from this appropriation all the right, title and interest, if any, of the United States of America in or to said property.

Pursuant to the statute(s) set forth above and the authority delegated to me by Official Order of the Commissioner of Transportation, this acquisition map is hereby approved and filed in the main office of the New York State Department of Transportation.

I have compared the foregoing copy of the map with the original thereof, as filed in the Office of the State Department of Transportation, and I do hereby certify the same to be a true and correct copy of the original and the whole thereof.

Date May 35 20 20 . Office of Right-of-Way

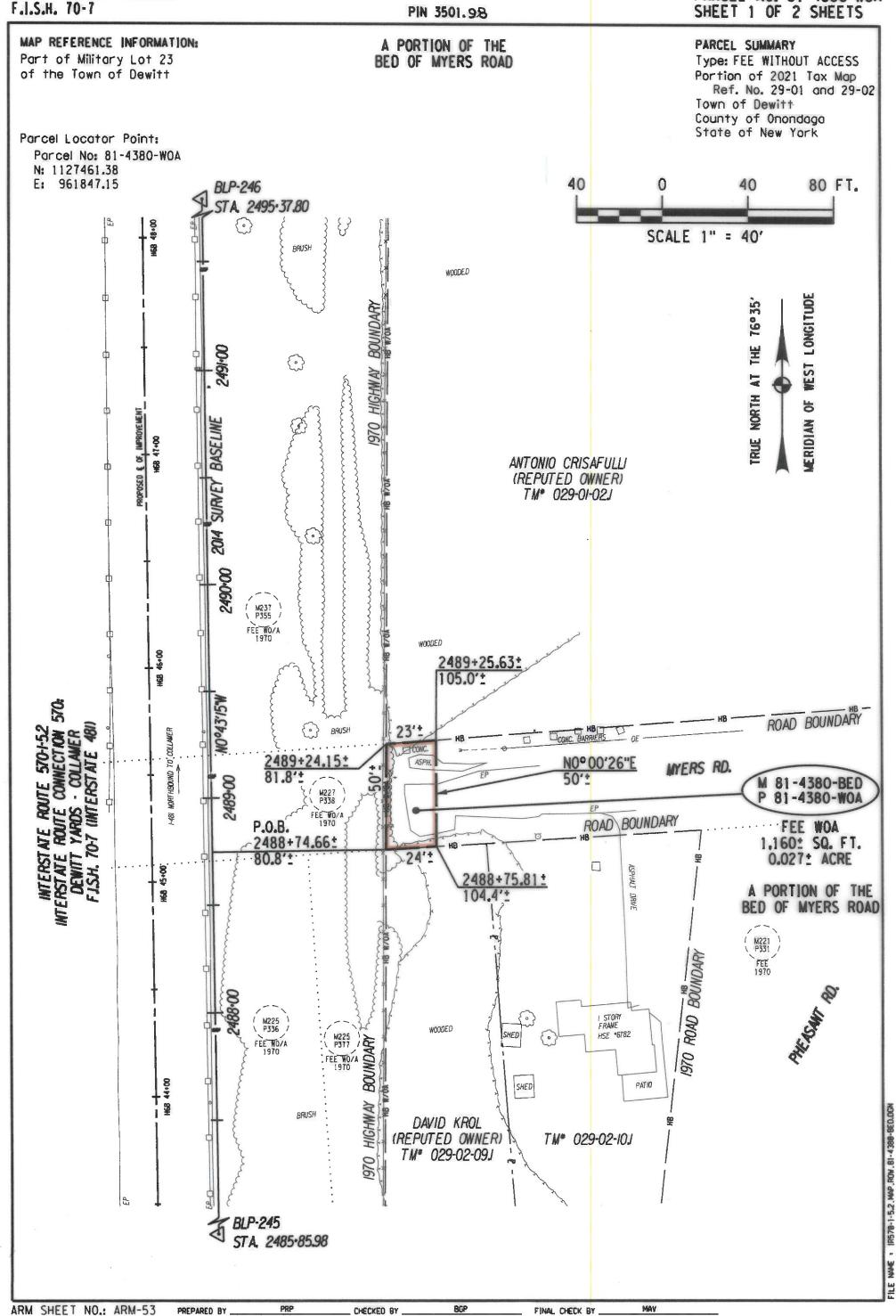
Suzanne Stella
Office of Right-of-Way

PREPARED BY PRP CHECKED BY BGP FINAL CHECK BY MAY

I-81 VIADUCT PROJECT Interstate Route 570-1-5.2 Interstate Route Connection 570: Dewitt Yards - Collamer

PIN 3501.98

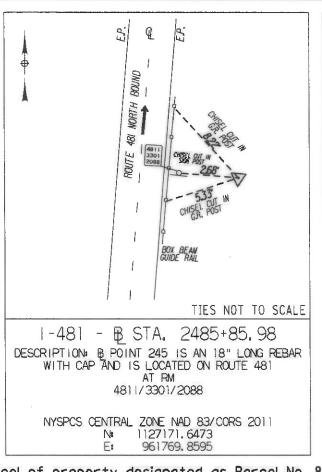
MAP NO. 81-4380-BED PARCEL NO. 81-4380-WOA SHEET 1 OF 2 SHEETS

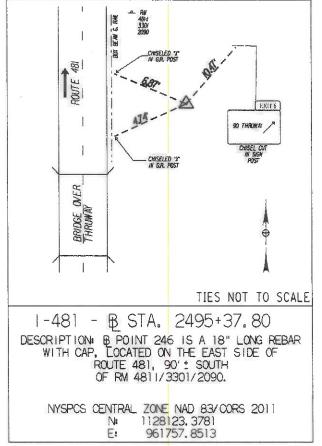


I-81 VIADUCT PROJECT
Interstate Route 570-1-5.2
Interstate Route Connection 570:
Dewitt Yords - Collamer
F.1.S.H. 70-7

PIN 3501.98

MAP NO. 81-4380-BED PARCEL NO. 81-4380-WOA SHEET 2 OF 2 SHEETS





All that piece or parcel of property designated as Parcel No. 81-4380-WOA, situate in Military Lot 23, Town of Dewitt, County of Onondaga, State of New York, to be acquired in Fee, without right of access to and from abutting property, as shown on the accompanying map and described as follows:

Beginning at the point of intersection of the easterly highway boundary of the existing Interstate Route Connection 570: Dewitt Yards - Collamer (1-481), with the southerly road boundary of the existing Myers Road, said point being 80.8½ feet distant easterly, measured at right angles from station 2488+74.66½ of the hereinafter described 2014 survey baseline for the construction of the 1-81 Viaduct Project; thence easterly along said southerly road boundary 24½ feet to a point 104.4½ feet distant easterly, measured at right angles from station 2488+75.81½ of said baseline; thence N0°00′26″E, through the Bed of Myers Road, 50½ feet to a point on the northerly road boundary of Myers Road, said point being 105.0½ feet distant easterly, measured at right angles from station 2489+25.63½ of said baseline; thence westerly along said northerly road boundary 23½ feet to a point on first mentioned easterly highway boundary, said point being 81.8½ feet distant easterly, measured at right angles from station 2489+24.15½ of said baseline; thence southerly along said easterly highway boundary 50½ feet to the point of beginning, being 1,160½ square feet, or 0.027½ acre, more or less.

SUBJECT TO utility easements and right-of-ways of record heretofore conveyed affecting the above described properly.

The above mentioned survey baseline is a portion of the survey baseline for the construction of 1-81 Viaduct Project, as shown on a map on file in the office of the New York State Department of Transportation, Region 3, in Syracuse, New York, and described as follows:

Beginning at Sta. 2485+85.98; thence North 0° 43' 15" West to Sta. 2495+37.80.

All bearings are based on True North at the 76°35' Meridian of West Longitude.

I hereby certify that the property mapped above is necessary for this project, and the acquisition thereof is recommended.

Date NOVEMBER 12, 20 21

Sparge a. Doucatta fr.

George A. Doucette, Jr., P.E. Regional Design Engineer for the Regional Director of Transportation Region No. 3



A PORTION OF THE BED OF MYERS ROAD "Unauthorized alteration of a survey map bearing a licensed land surveyor's seal is a violation of the New York State Education Law."

I hereby certify that this map was prepared in accordance with current NYSDOT policies, standards and procedures.

Date NOVEMBER 12, 20 21

Prudent Engineering LLP Engineering and Land Surveying By Bradley G. Pcolinsky, Land Surveyor L.S. License No. 050697

Map of property which the Commissioner of Transportation deems necessary to be acquired by appropriation in the name of the People of the State of New York in fee, without right of access to and from abutting property, except for the purposes of the rights described above, for purposes connected with the highway system of the State of New York pursuant to Sections 30 and 340-B of the Highway Law and the Eminent Domain Procedure Law.

Pursuant to the statute(s) set forth above and the authority delegated to me by Official Order of the Commissioner of Transportation, this acquisition map is hereby approved and filed in the main office of the New York State Department of Transportation.

I have compared the foregoing copy of the map with the original thereof, as filed in the Office of the State Department of Transportation, and I do hereby certify the same to be a true and correct copy of the original and the whole thereof.

Office of Right-of-Way

Office of Right-of-Way

PREPARED BY PRP CHECKED BY BGP FINAL CHECK BY MAY

I-81 VIADUCT PROJECT Interstate Route 505-3-4.1 Interstate Route 505: Mattydale - Brewerton F.I.S.H. 57-6

PIN 3501.98

MAP NO. 81-4400 PARCEL NO. 81-4400-WOA SHEET 1 OF 3 SHEETS

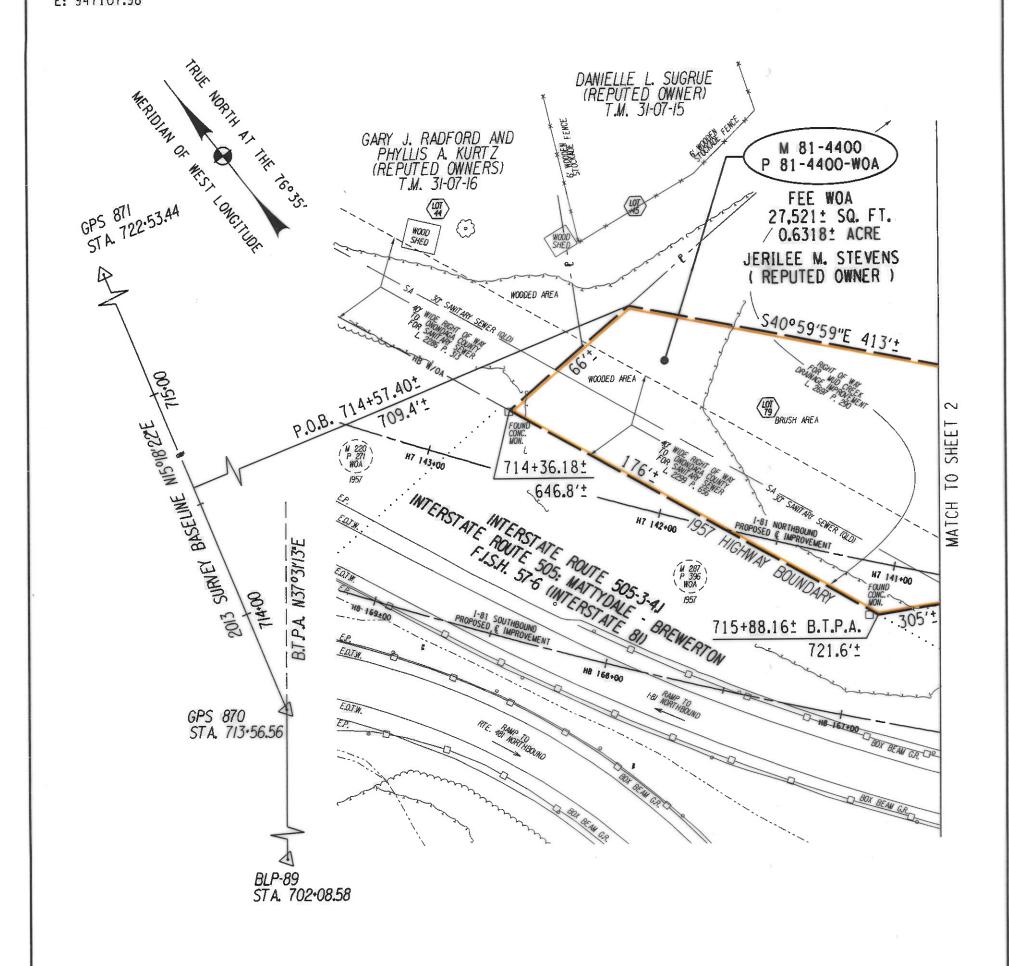
### MAP REFERENCE INFORMATION:

(1) Part of Lot (79) of map entitled "Lang Manor Tract, Section 3", filed May 23, 1979, CCM \* 5774

(2) Part of Military Lot 81 of the Town of Cicero JERILEE M. STEVENS ( REPUTED OWNER )

CCD L. 4794 P. 414 TRN 4400 PARCEL SUMMARY
Type: FEE WITHOUT ACCESS
Portion of 2021 Tax Map
Ref. No. 31-07-08.1
Town of Cicero
County of Onondaga
State of New York

Parcel Locator Point: Parcel No: 81-4400-WOA N: 1145510.58 E: 947107.98



40 0 40 80 FT. SCALE 1" = 40'

B.T.P.A. = BACK TANGENT PRODUCED AHEAD

ARM SHEET NO .: ARM-52 PREPARED BY MDS

\_ CHECKED BY \_

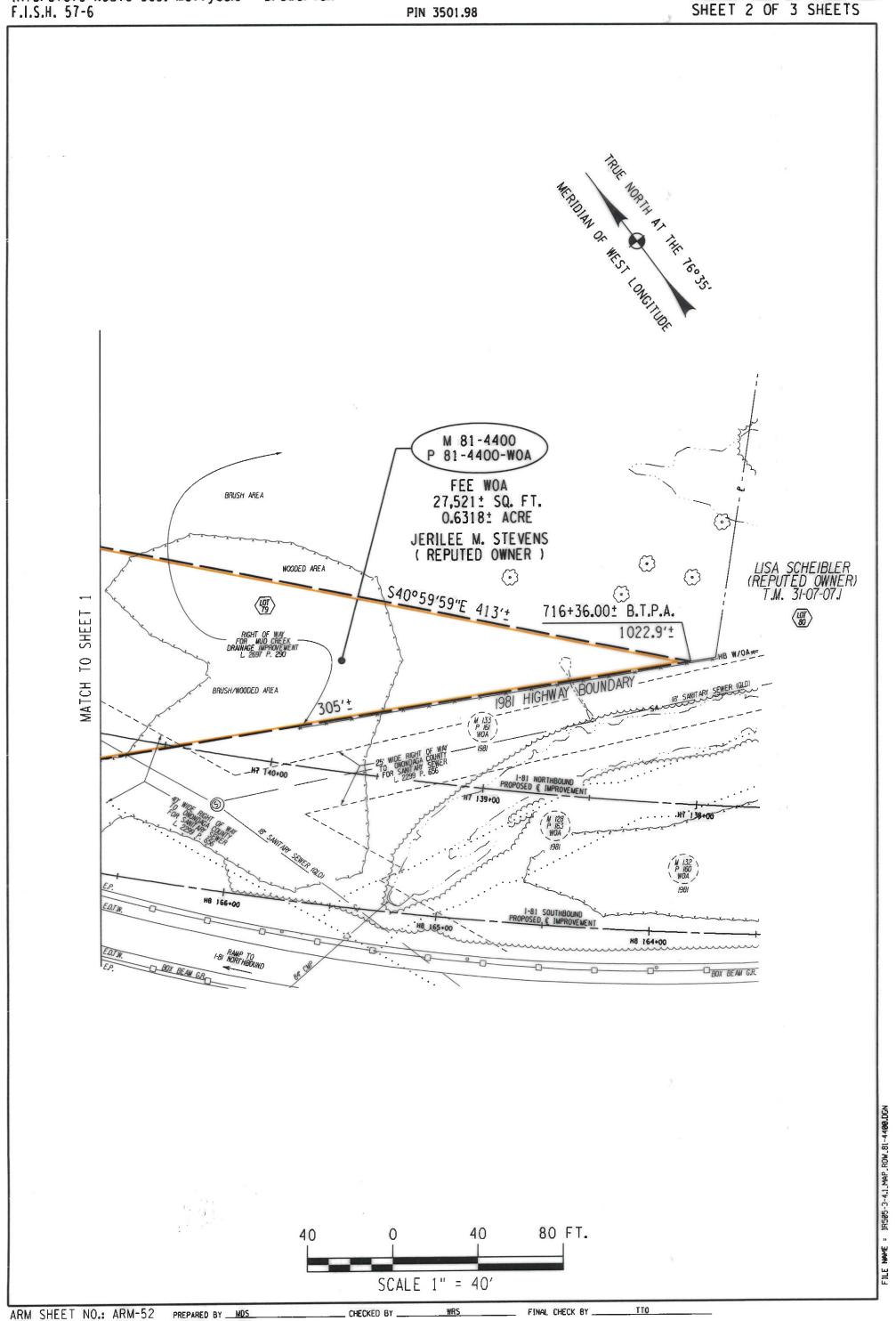
FINAL CHECK BY

TTO

Make to those date to to decide . These many

I-81 VIADUCT PROJECT Interstate Route 505-3-4.1 Interstate Route 505: Mattydale - Brewerton F.I.S.H. 57-6

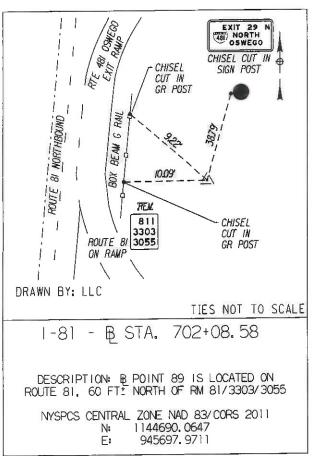
MAP NO. 81-4400 PARCEL NO. 81-4400-WOA SHEET 2 OF 3 SHEETS

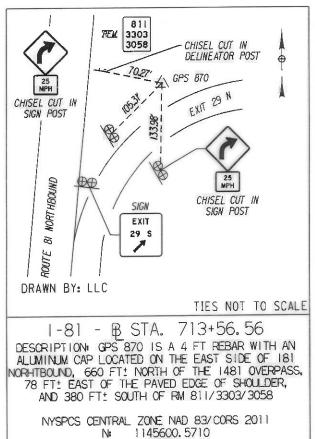


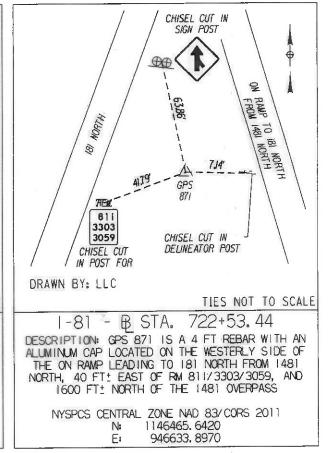
I-81 VIADUCT PROJECT Interstate Route 505-3-4.1 Interstate Route 505: Mattydale - Brewerton F.I.S.H. 57-6

PIN 3501.98

MAP NO. 81-4400 PARCEL NO. 81-4400-WOA SHEET 3 OF 3 SHEETS







All that piece or parcel of property designated as Parcel No. 81-4400-WOA, as shown on the accompanying map, to be acquired in Fee, without right of access to and from abutting property.

SUBJECT TO utility easements and right-of-ways of record heretofore conveyed affecting the above described property.

I hereby certify that the property mapped above is necessary for this project, and the acquisition thereof is recommended.

AUGUST 5, 20 21

George A. Doucette, Jr., P.E.

Regional Design Engineer for the Regional Director of Transportation Region No. 3

OF NEW SATE

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I hereby certify that this map was prepared in accordance with current NYSDOT policies, standards and procedures.

JULY 26,

- 20 <u>21</u>

Popli Design Group

Timothy T. Odell, Land Surveyor P.L.S. License No. 50995

### JERILEE M. STEVENS REPUTED OWNER )

Map of property which the Commissioner of Transportation deems necessary to be acquired by appropriation in the name of the People of the State of New York in fee, without right of access to and from abutting property, except for the purposes of the rights described above, for purposes connected with the highway system of the State of New York pursuant to Sections 30 and 340-B of the Highway Law and the Eminent Domain Procedure Law.

There is excepted from this appropriation all the right, title and interest, if any, of the United States of America in or to said property.

Pursuant to the statute(s) set forth above and the authority delegated to me by Official Order of the Commissioner of Transportation, this acquisition map is hereby approved and filed in the main office of the New York State Department of Transportation.

I have compared the foregoing copy of the map with the original thereof, as filed in the Office of the State Department of Transportation, and I do hereby certify the same to be a true and correct copy of the original and the whole thereof.

Office of Right-of-Way

Office of Right-of-Way

PREPARED BY \_\_MDS

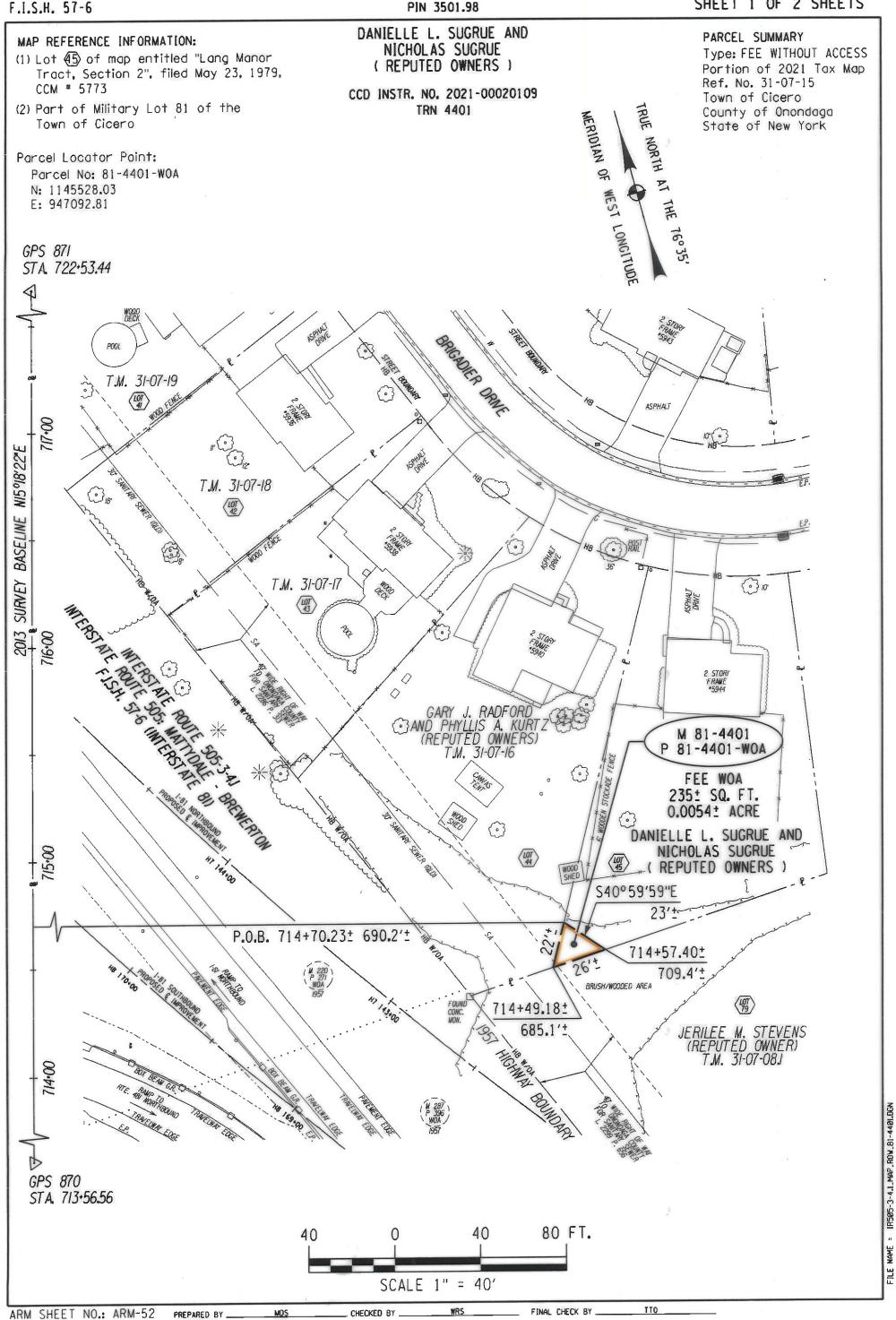
CHECKED BY

FINAL CHECK BY .

NAME = IR505-3-4.1\_MAP\_ROW\_81-4400.DGN

I-81 VIADUCT PROJECT Interstate Route 505-3-4.1 Interstate Route 505: Mattydale - Brewerton

MAP NO. 81-4401 PARCEL NO. 81-4401-WOA SHEET 1 OF 2 SHEETS



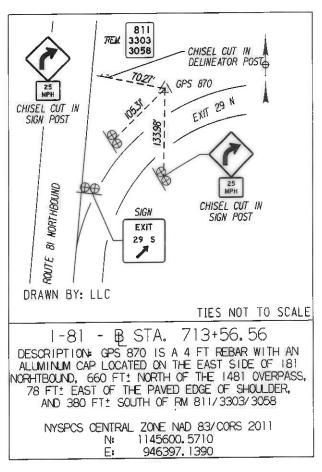
I-81 VIADUCT PROJECT

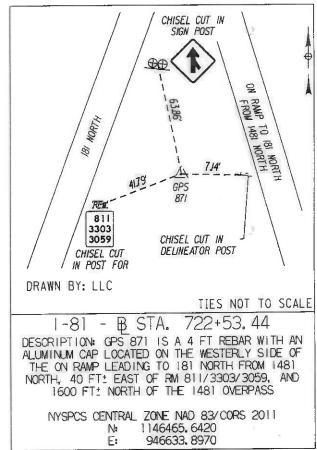
Interstate Route 505-3-4.1

Interstate Route 505: Mattydale - Brewerton F.I.S.H. 57-6

PIN 3501.98

MAP NO. 81-4401 PARCEL NO. 81-4401-WOA SHEET 2 OF 2 SHEETS





All that piece or parcel of property designated as Parcel No. 81-4401-WOA, as shown on the accompanying map, to be acquired in Fee, without right of access to and from abutting property.

SUBJECT TO utility easements and right-of-ways of record heretofore conveyed affecting the above described property.

I hereby certify that the property mapped above is necessary for this project, and the acquisition thereof is recommended.

AUGUST 5, 20 21

George A. Doucette, Jr., P.E.

Regional Design Engineer for the Regional Director of Transportation Region No. 3



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I hereby certify that this map was prepared in accordance with current NYSDOT policies, standards and procedures.

Date

JULY 26,

- 20 <u>21</u>

Popli Design Group

By: Timothy T. Odell, Land Surveyor P.L.S. License No. 50995

DANIELLE L. SUGRUE AND NICHOLAS SUGRUE ( REPUTED OWNERS )

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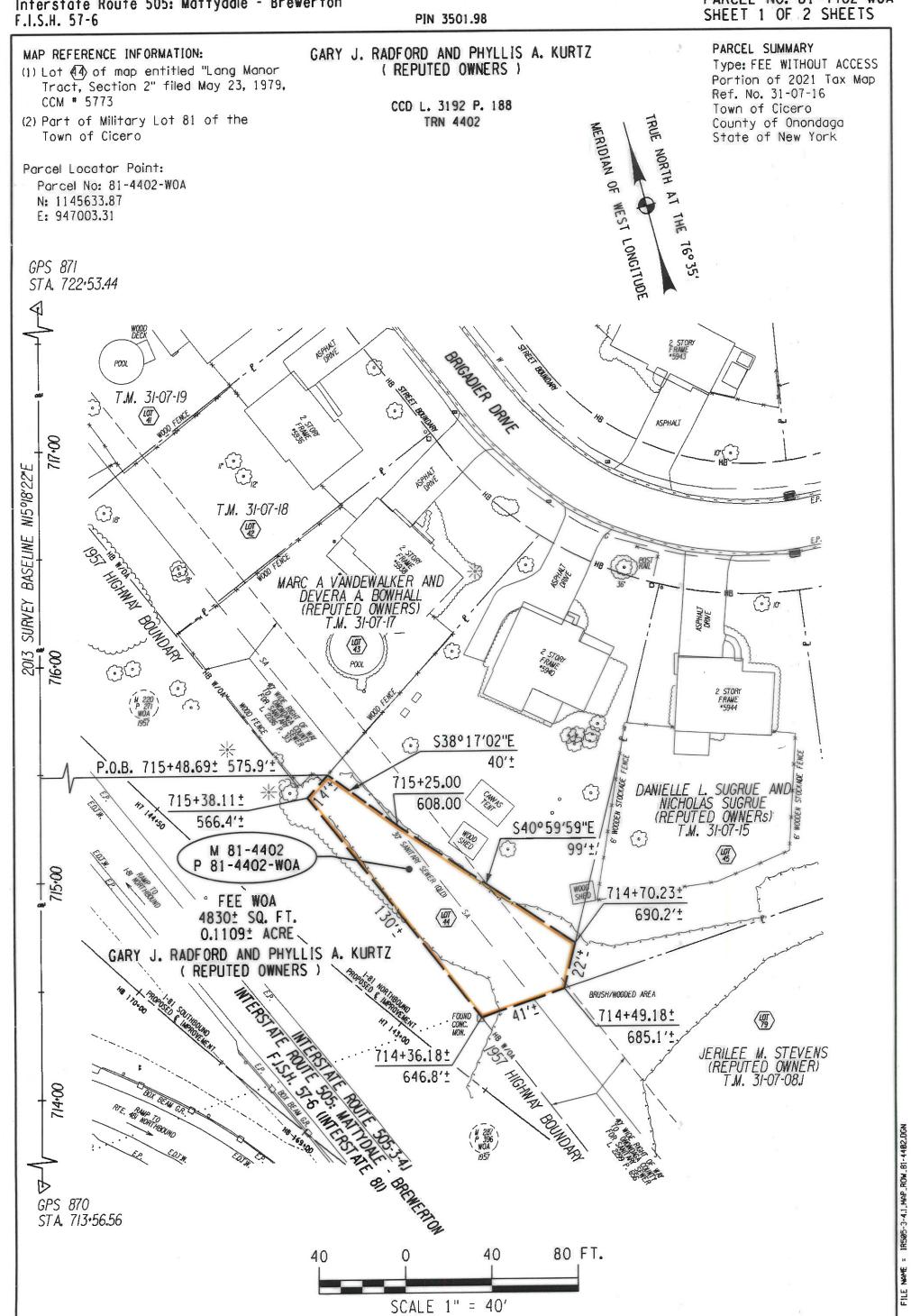
Date May 18 20 22, Office of Right-of-Way

Suzanne Stella
Office of Right-of-Way

PREPARED BY MOS CHECKED BY MRS FINAL CHECK BY TTO

I-81 VIADUCT PROJECT Interstate Route 505-3-4.1 Interstate Route 505: Mattydale - Brewerton

MAP NO. 81-4402 PARCEL NO. 81-4402-WOA SHEET 1 OF 2 SHEETS



FINAL CHECK BY \_

CHECKED BY \_

MDS

PREPARED BY

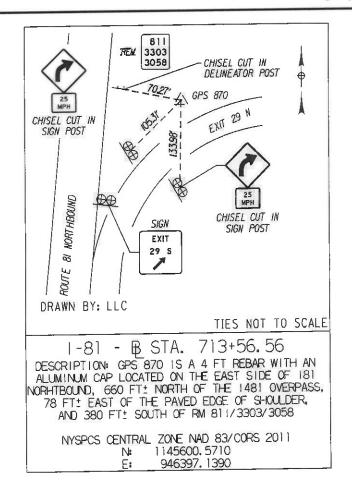
ARM SHEET NO.: ARM-52

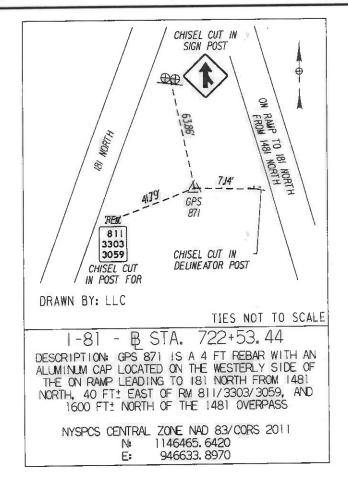
TTO

I-81 VIADUCT PROJECT Interstate Route 505-3-4.1 Interstate Route 505: Mattydale - Brewerton F.I.S.H. 57-6

PIN 3501.98

MAP NO. 81-4402 PARCEL NO. 81-4402-WOA SHEET 2 OF 2 SHEETS





All that piece or parcel of property designated as Parcel No. 81-4402-WOA, as shown on the accompanying map, to be acquired in Fee, without right of access to and from abutting property.

SUBJECT TO utility easements and right-of-ways of record heretofore conveyed affecting the above described property.

I hereby certify that the property mapped above is necessary for this project, and the acquisition thereof is recommended.

Date AUGUST 5, 2021

George A. Doucette, Jr., P.E. Regional Design Engineer

for the Regional Director of Transportation

Region No. 3



"Unauthorized alteration of a survey map bearing a licensed land surveyor's seal is a violation of the New York State Education Law."

I hereby certify that this map was prepared in accordance with current NYSDOT policies, standards and procedures.

Date \_

JULY 26,

20 21

Popli Design Group

By: Timothy T. Odell, Land Surveyor P.L.S. License No. 50995

## GARY J. RADFORD AND PHYLLIS A. KURTZ ( REPUTED OWNERS )

Map of property which the Commissioner of Transportation deems necessary to be acquired by appropriation in the name of the People of the State of New York in fee, without right of access to and from abutting property, except for the purposes of the rights described above, for purposes connected with the highway system of the State of New York pursuant to Sections 30 and 340-B of the Highway Law and the Eminent Domain Procedure Law.

There is excepted from this appropriation all the right, title and interest, if any, of the United States of America in or to said property.

Pursuant to the statute(s) set forth above and the authority delegated to me by Official Order of the Commissioner of Transportation, this acquisition map is hereby approved and filed in the main office of the New York State Department of Transportation.

PREPARED BY .

I have compared the foregoing copy of the map with the original thereof, as filed in the Office of the State Department of Transportation, and I do hereby certify the same to be a true and correct copy of the original and the whole thereof.

Date May 18 20 22, Office of Right-of-Way

Suzanne Stella
Office of Right-of-Way

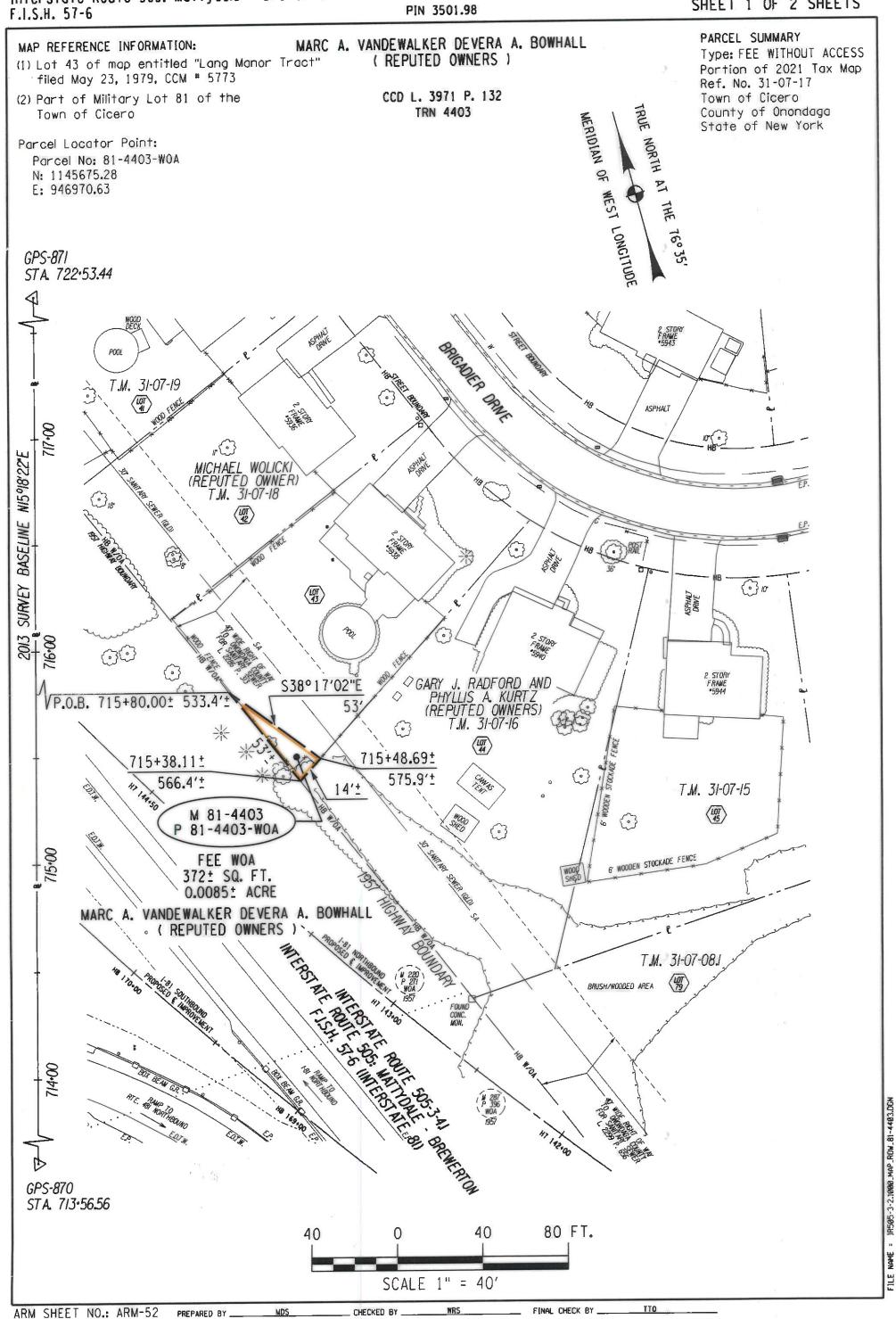
MDS CHECKED BY WRS FINAL CHECK BY TTO

1-81 VIADUCT PROJECT

Interstate Route 505-3-4.1

Interstate Route 505: Mattydale - Brewerton

MAP NO. 81-4403 PARCEL NO. 81-4403-WOA SHEET 1 OF 2 SHEETS

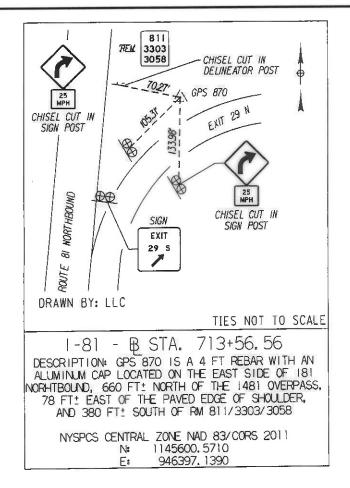


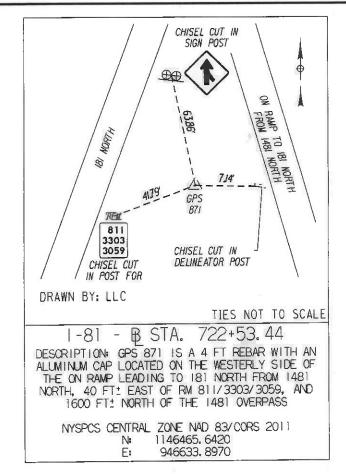
I-81 VIADUCT PROJECT Interstate Route 505-3-4.1 Interstate Route 505: Mattydale - Brewerton

F.I.S.H. 57-6

PIN 3501.98

MAP NO. 81-4403 PARCEL NO. 81-4403-WOA SHEET 2 OF 2 SHEETS





All that piece or parcel of property designated as Parcel No. 81-4403-WOA, as shown on the accompanying map, to be acquired in Fee, without right of access to and from abutting property.

SUBJECT TO utility easements and right-of-ways of record heretofore conveyed affecting the above described property.

I hereby certify that the property mapped above is necessary for this project, and the acquisition thereof is recommended.

AUGUST 5, \_\_ 20 21

George A. Doucette, Jr., P.E.

Regional Design Engineer for the Regional Director of Transportation

Region No. 3



"Unauthorized alteration of a survey map bearing a licensed land surveyor's seal is a violation of the New York State Education Law."

I hereby certify that this map was prepared in accordance with current NYSDOT policies, standards and procedures.

Date \_

JULY 26,

- 20 <u>21</u>

= 1R585-3-2.1888\_MAP\_ROW\_81-4483.DGN

Popli Design Group

By: Timothy T. Odell, Land Surveyor P.L.S. License No. 50995

### MARC A. VANDEWALKER DEVERA A. BOWHALL ( REPLITED OWNERS )

Map of property which the Commissioner of Transportation deems necessary to be acquired by appropriation in the name of the People of the State of New York in fee, without right of access to and from abutting property, except for the purposes of the rights described above, for purposes connected with the highway system of the State of New York pursuant to Sections 30 and 340-B of the Highway Law and the Eminent Domain Procedure Law.

There is excepted from this appropriation all the right, title and interest, if any, of the United States of America in or to said property.

Pursuant to the statute(s) set forth above and the authority delegated to me by Official Order of the Commissioner of Transportation, this acquisition map is hereby approved and filed in the main office of the New York State Department of Transportation.

PREPARED BY \_

I have compared the foregoing copy of the map with the original thereof, as filed in the Office of the State Department of Transportation, and I do hereby certify the same to be a true and correct copy of the original and the whole thereof.

, Office of Right of-Way

CHECKED BY \_

MOS

Office of Right-of-Way

TTO FINAL CHECK BY

I-81 VIADUCT PROJECT Interstate Route 505-3-4.1 Interstate Route 505: Mattydale - Brewerton F.I.S.H. 57-6

PIN 3501.98

MAP NO. 81-4404 PARCEL NO. 81-4404-WOA SHEET 1 OF 2 SHEETS

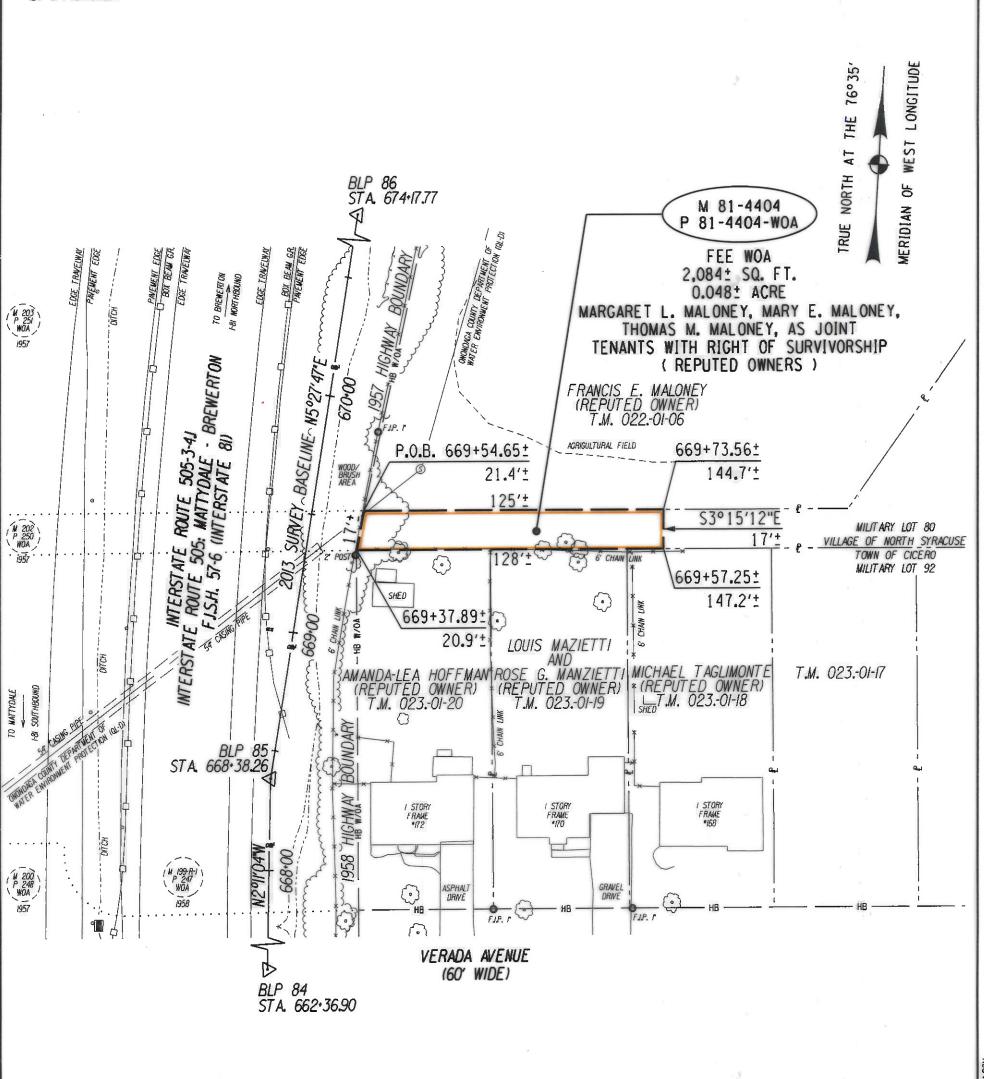
MAP REFERENCE INFORMATION:

Part of Military Lot 80 of the Town of Cicero

Parcel Locator Point: Parcel No: 81-4404-WOA N: 1141954.54 E: 944079.80 MARGARET L. MALONEY, MARY E. MALONEY, THOMAS M. MALONEY, AS JOINT TENANTS WITH RIGHT OF SURVIVORSHIP ( REPUTED OWNERS )

> CCD INSTR. NO. 2021-00060840 TRN 4404

PARCEL SUMMARY
Type: FEE WITHOUT ACCESS
Portion of 2021 Tax Map
Ref. No. 022-01-07.0
Village of North Syracuse
Town of Cicero
County of Onondaga
State of New York



80 FT.

FINAL CHECK BY

40

= 40'

WRS

SCALE 1"

CHECKED BY

40

MDS

PREPARED BY

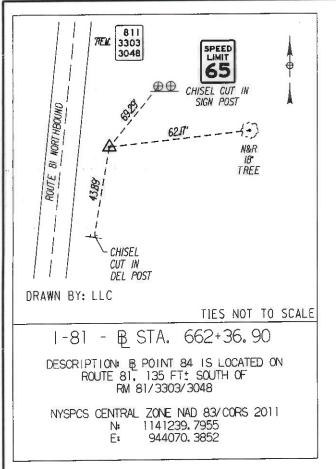
ARM SHEET NO .: ARM-47

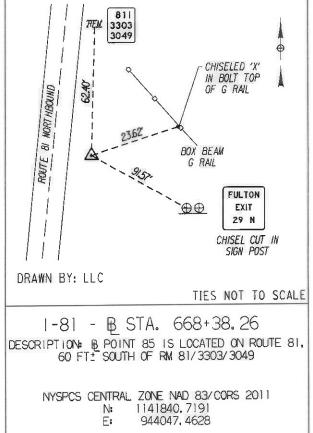
1-81 VIADUCT PROJECT Interstate Route 505-3-4.1

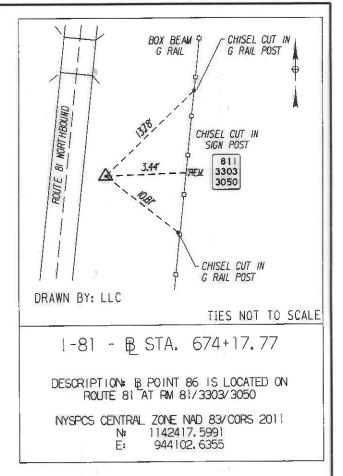
Interstate Route 505: Mattydale - Brewerton F.I.S.H. 57-6

PIN 3501.98

MAP NO. 81-4404 PARCEL NO. 81-4404-WOA SHEET 2 OF 2 SHEETS







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AUGUST 13, 2021

al a. Danable George A. Doucette, Jr., P.E. Regional Design Engineer

for the Regional Director of Transportation

Region No. 3



"Unauthorized alteration of a survey map bearing a licensed land surveyor's seal is a violation of the New York State Education Law.'

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Date \_

AUGUST 12, 20 21

Popli Design Group

By: Timothy T. Odell, Land Surveyor P.L.S. License No. 50995

MARGARET L. MALONEY, MARY E. MALONEY, THOMAS M. MALONEY, AS JOINT TENANTS WITH RIGHT OF SURVIVORSHIP ( REPUTED OWNERS )

Map of property which the Commissioner of Transportation deems necessary to be acquired by appropriation in the name of the People of the State of New York in fee, without right of access to and from abutting property, except for the purposes of the rights described above, for purposes connected with the highway system of the State of New York pursuant to Section 30 of the Highway Law and the Eminent Domain Procedure Law.

There is excepted from this appropriation all the right, title and interest, if any, of the United States of America in or to said property.

WRS

Pursuant to the statute(s) set forth above and the authority delegated to me by Official Order of the Commissioner of Transportation, this acquisition map is hereby approved and filed in the main office of the New York State Department of Transportation.

I have compared the foregoing copy of the map with the original thereof, as filed in the Office of the State Department of Transportation, and I do hereby certify the same to be a true and correct copy of the original and the whole thereof.

Rance 1

Office of Right-of-Way

PREPARED BY .

CHECKED BY .

. Office of Right-of-Way

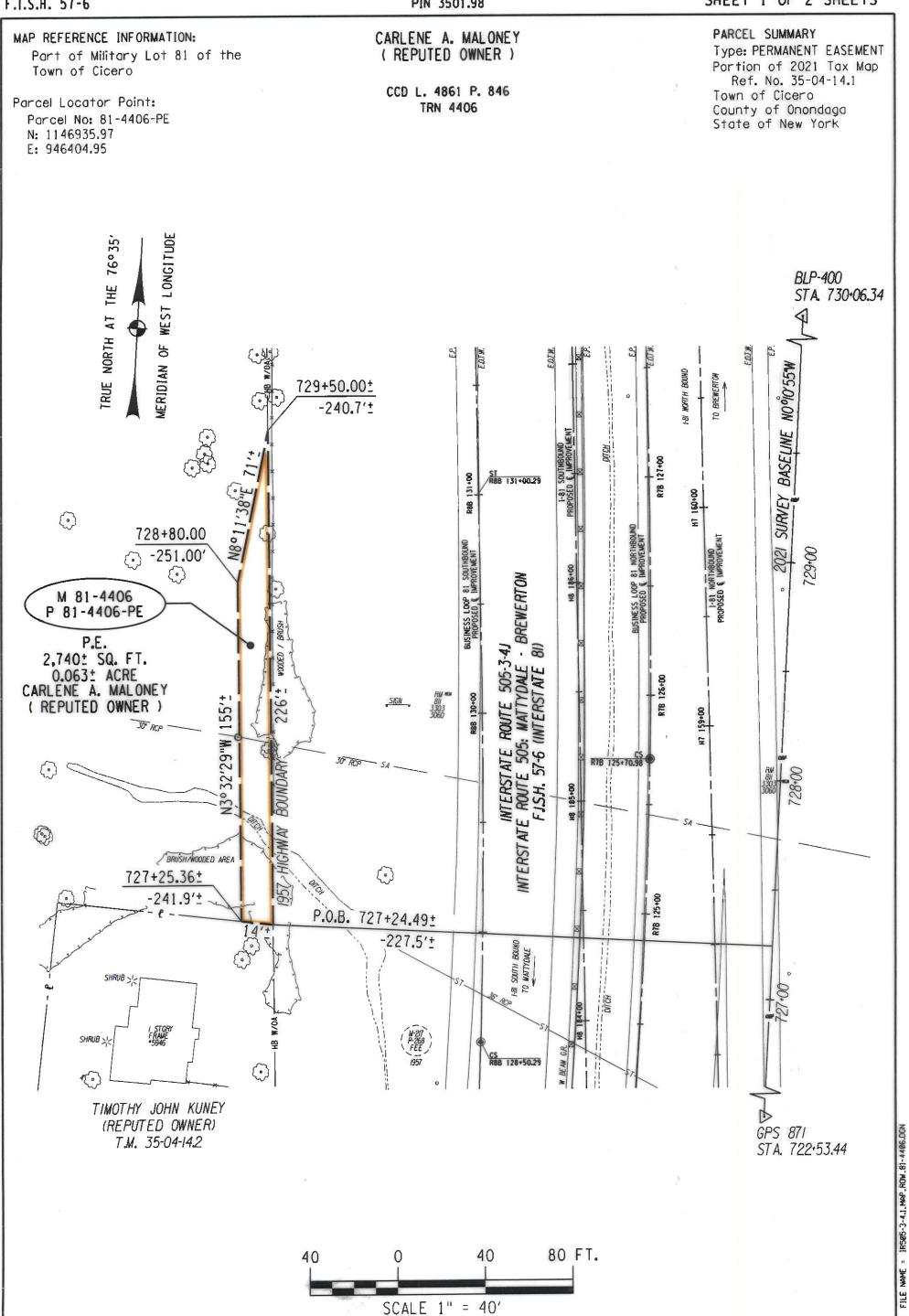
FINAL CHECK BY \_\_

1-81 VIADUCT PROJECT Interstate Route 505-3-4.1 Interstate Route 505: Mattydale - Brewerton F.I.S.H. 57-6

ARM SHEET NO.: ARM-50

PIN 3501.98

MAP NO. 81-4406 PARCEL NO. 81-4406-PE SHEET 1 OF 2 SHEETS



FINAL CHECK BY

WRS

CHECKED BY \_

MDS

PREPARED BY

TTO

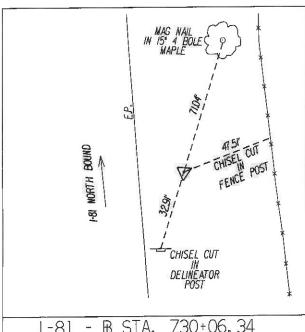
I-81 VIADUCT PROJECT

Interstate Route 505-3-4.1

Interstate Route 505: Mattydale - Brewerton

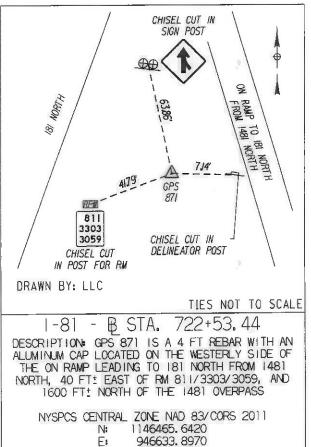
F.I.S.H. 57-6

PIN 3501.98



I-81 - B STA. 730+06.34 DESCRIPTION: B POINT 400 IS A 36" LONG REBAR WITH ALUMINUM CAP AND IS LOCATED ON THE EAST SIDE OF 1-81 NORTH, 2061 FT NORTH OF RM 811/3303/3060.

> NYSPCS CENTRAL ZONE NAD 83/CORS 2011 N: 1147218,5422 946631,5070



### PERMANENT EASEMENT FOR DRAINAGE DITCH AND DRAINAGE STRUCTURE

A permanent easement to be exercised in, on and over the property above delineated for the purpose of constructing, reconstructing and maintaining thereon a drainage ditch and drainage structures, together with appurtenances, in and to all that piece or parcel of property designated as Parcel No. 81-4406-PE, as shown on the accompanying map.

RESERVING, however, to the owner of any right, title or interest in and to the property delineated as Parcel No. 81-4406-PE above, and such owner's successors or assigns, the right of access and the right of using said property and such use shall not be further limited or restricted under this easement beyond that which is necessary to effectuate its purposes for, and as established by, the construction or reconstruction and as so constructed or reconstructed, the maintenance, of the herein identified project.

I hereby certify that the property mapped above is necessary for this project, and the acquisition thereof is recommended.

Region No. 3

AUGUST 13, 20 21

of a. Doucalla George A. Doucette, Jr., P.E.

Regional Design Engineer for the Regional Director of Transportation OF

CARLENE A. MALONEY ( REPUTED OWNER )

"Unauthorized alteration of a survey map bearing a licensed land surveyor's seal is a violation of the New York State Education Law."

I hereby certify that this map was prepared in accordance with current NYSDOT policies, standards and procedures.

Date \_

AUGUST 12,

\_ 20<u>21</u>\_\_

Popli Design Group

Timothy T. Odell, Land Surveyor P.L.S. License No. 50995

Map of property in and to which an easement as herein above defined is deemed necessary by the Commissioner of Transportation to be acquired by appropriation in the name of the People of the State of New York for purposes connected with the highway system of the State of New York pursuant to Sections 30 and 340-B of the Highway Law and the Eminent Domain Procedure Law.

There is excepted from this appropriation all the right, title and interest, if any, of the United States of America in or to said property.

WRS

Pursuant to the statute(s) set forth above and the authority delegated to me by Official Order of the Commissioner of Transportation, this acquisition map is hereby approved and filed in the main office of the New York State Department of Transportation.

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. Office of Right-of-Way

Office of Right-of-Way

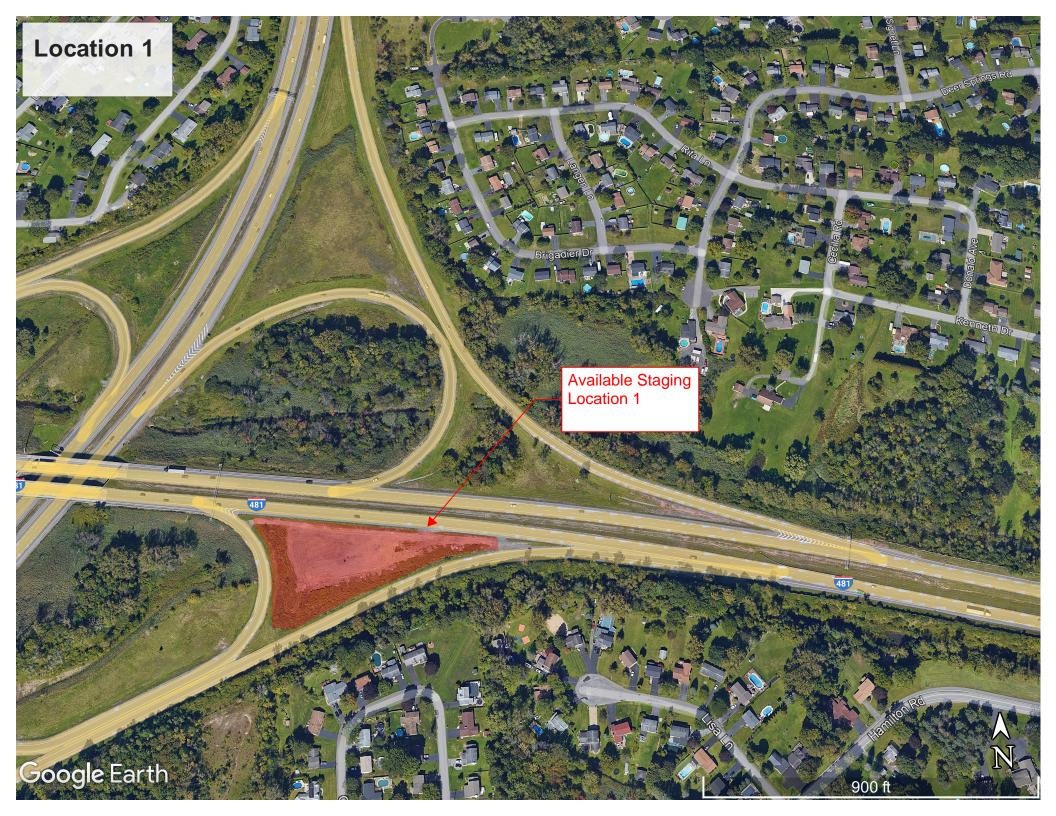
PREPARED BY \_

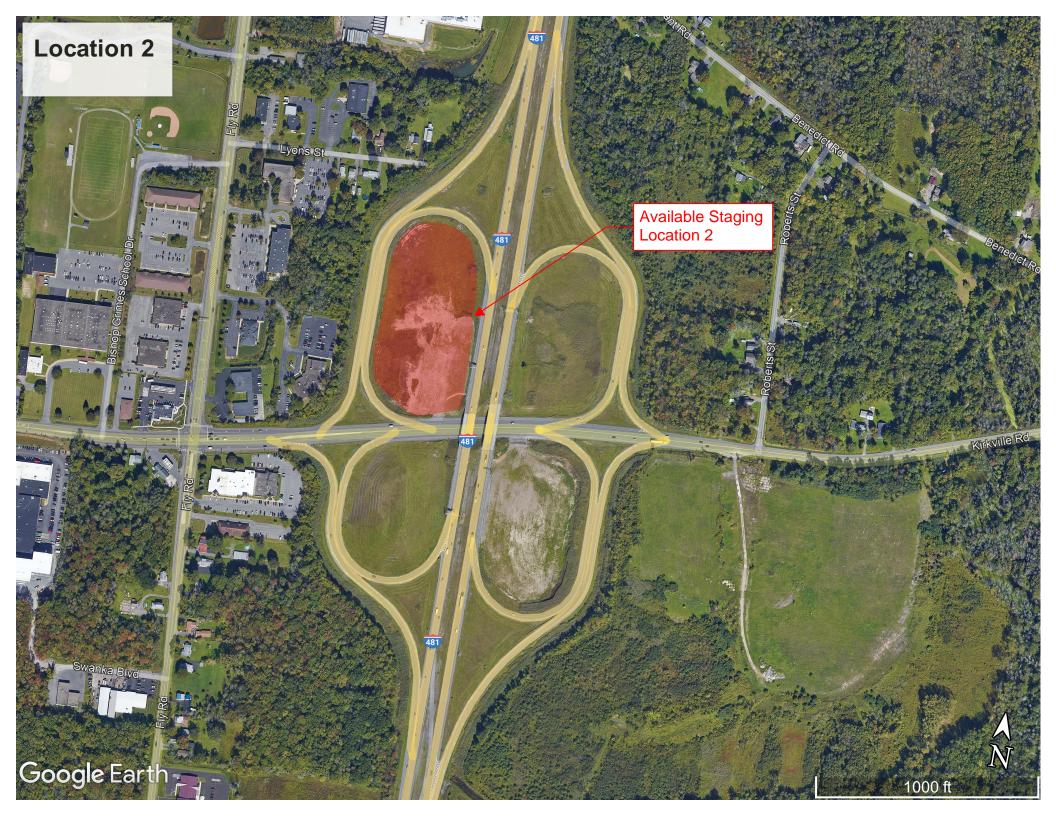
CHECKED BY

FINAL CHECK BY \_

## **Staging Area Plans**







## **Sanitary Sewer System Requirements**

#### **Special Note**

#### **Owner Requirements for Sanitary Sewer System Relocation**

The following are requirements of the owner of the sanitary sewer system for this contract, covering sewer conflicts at the I-481/I-81 interchange in Cicero. All of the minimum specifications designated are the requirement of the Owner. Approval of an equal item other than that specified must be granted by the Owner.

Owner: Onondaga County Department of Water Environment Protection (OCDWEP)

Address: 650 Hiawatha Boulevard, West

City, State, ZIP: Syracuse, New York 13204

**Contact**: Shannon Harty, Commissioner

**Phone#**: 315-435-2260

#### Plan & Profile Review

The Owner requires review and approval of materials, associated appurtenances, and sewer alignments. The design of the sanitary sewer system infrastructure requiring relocation shall be stamped by a professional engineer. The estimated time required for Owner approval of materials, appurtenance, and sewer alignments during construction is two weeks. In addition to Owner approval, the design plans to modify the sanitary sewer system must be reviewed and approved by the NYSDEC which may take up to two months.

#### **General Requirements**

A conceptual alignment has been discussed with the NYSDOT project team, however, based on the potential for alternative alignments of I-81, OCDWEP is defining the following general requirements for the sanitary sewer system:

- The sanitary sewer system shall be designed in accordance with 10 States Standards, at a minimum.
- Critical infrastructure, such as manhole rims, shall be located above the base flood elevation as required in the NYSDEC NYS Flood Risk Management Guidance for Implementation of the CRRA: Estimating Guideline elevations and/or installed with watertight manhole covers as allowable.
- Doghouse manholes constructed over existing asbestos concrete sanitary sewer pipes shall not be acceptable.
- New sanitary sewer pipe shall be installed from manhole to manhole (whether existing or new). If the proposed alignment of the replacement sewer prevents connecting to the

existing manhole, or new connections threatens the structural integrity of the manhole, a new manhole shall be installed.

- A casing pipe shall be required to hold new pipe crossing underneath I-81.
- Re-routing of the sanitary sewer shall not the reduce capacity of the sewer main, or cause issues with maintaining sewer flows.
- The inside diameter of selected pipe material shall not be less than the inside diameter of the existing pipe.
- The distance between manholes shall not exceed the length dictated in 10 States Standards for the size pipe being installed.
- Stream crossing requirements shall be as dictated in 10 States Standards.
- Provide a P.E. Stamped bypass pumping plan and specifications, include an estimate for the duration for each bypass event. The plan must provide installation, operation, and maintenance of a bypass system as required to properly construct the new sewer systems. Ensure that the specification include required submittals for; a sewer plugging method, bypass pump sizing, capacity, number of pumps to be on site, staging site for the pumps and lines, emergency response plan, and power requirements.
- Manhole and Pipe testing and inspections must be in accordance with 10 States Standards, testing results to be provided to the Owner.
- Owner is to be notified of when construction is to commence.
- "As-built" and Record Drawings need to be provided after construction of the new sewer infrastructure is complete.

#### Pipe:

*Material*: Minimum PVC SDR 35 or as required for the depth of cover over the sanitary sewer.

**Bedding Requirements**: As required for the soil and roadway loading above the sanitary sewer.

#### **Casing Pipe:**

*Material:* Steel, in accordance with AWWA C200 and AWWA Steel Pipe Design Manual M11.

**Bedding Requirements:** As required for the soil and roadway loading above the sanitary sewer.

#### Manholes:

#### Precast Bases

- 1. The precast bases shall be monolithic reinforced concrete.
- 2. The bottom or floor of the monolithic precast base shall have a minimum thickness of 8-inches and shall project no less than 6 inches beyond the outside walls of the monolithic precast base to form a flange or annular footing intended to resist uplift.

- 3. The lowest edges of holes or cutouts for line and branch sewers shall be no less than six inches above the inside surface of the floor or footing of the monolithic precast base. The highest edges of holes or cutouts for line and branch sewers shall be no less than 6 inches from joint surfaces as detailed on the Plans. After installation of the line and branch sewers, manhole channels or inverts shall be formed by using 4000 psi fill concrete.
- 4. At the points where line and branch sewers are connected to the monolithic precast bases or manhole barrels, the annular spaces between the pipes and holes shall be sealed with assemblies consisting of rubber gaskets to form watertight barriers. Such sealing assemblies shall be: watertight manhole boot seal as manufactured by PSX: Direct Drive or approved equal. After installation, metal parts of the above assemblies that are accessible from inside the manholes shall be coated with "Preco-Patch" or approved equal.
- 5. The edges of holes or cutouts in riser or barrel sections for line and branch sewers shall be no less than 6 inches from joint surfaces, as detailed on the Plans.
- 6. The specification must also include provisions for an exterior bituminous waterseal and preparation of the area beneath the manhole base

#### Sanitary Sewer Manhole Barrel and Cone

- 1. All precast manhole cones and barrels shall be constructed in accordance with the latest ASTM Specification C-478 "Precast Reinforced Concrete Manhole Sections", with the following exceptions: The manhole barrel walls shall be five (5) inches thick for a four (4) foot diameter manhole. The upper section of the precast manhole shall be an eccentric cone design having a 24" inside top opening diameter with an 8" (width) top bearing surface.
- 2. Where the depth of the manhole is such that an eccentric cone section cannot be used, a flat top section with a 24-inch opening shall be provided. The flat top slabs shall be a minimum of 8" thick and shall be capable of supporting a H-20 loading. Flat top slabs are only allowed on shallow sewers, 5.5 feet or less in depth from rim to invert.
- 3. The precast bases and manhole barrel sections are required to be vacuum factory tested in job lots per the following schedule. Factory vacuum tests shall be performed on linear footage of manhole barrel job lots as follows:
  - a. First test for jobs requiring from 8 feet to 100 feet of manholes.
  - b. Second test shall be performed on 101 feet to 300 feet lots.
  - c. Third test shall be performed on 301 feet to 600 feet lots.
  - d. Fourth test shall be performed on 601 feet to 1,000 feet lots.
  - e. Fifth test shall be performed on lots over 1,001 feet.
- 4. Installation and operation of vacuum equipment and indicating devices shall be in accordance with the manufacturer's recommendations and instructions. A test vacuum of 10 inches of mercury shall be drawn. The time for the vacuum to drop to 9 inches of mercury shall be recorded. Acceptance for 4-foot diameter manholes shall be defined as when the time to drop to 9 inches of mercury meets or exceeds the following:

Manhole Depth	Time to Drop 1" Hg	
10 feet or less	60 seconds	
10 feet to 15 feet	75 seconds	
15 feet to 30 feet	90 seconds	

If the manhole fails the test, necessary repairs shall be made and the vacuum test repeated until the manhole passes the test.

#### **Joints**

- 1. The manhole barrel and cone joints shall be concrete with a confined "O" ring, neoprene gasket in accordance with the latest ASTM Specification C-443. The manhole supplier will be required to vacuum test the manhole joint in the factory in the job lots as described in 2.03, all in accordance with the latest ASTM Specification C-443 at a test pressure of 13 psi. The joint test may be performed at the same time as the vacuum test which was described previously in this Section. The factory joint test shall be conducted without the joint compound specified below.
- 2. For "O" ring joints, asphaltic joint compound (60 100 m) shall be buttered on spigots and bells prior to assembling the manhole sections.
- 3. After the barrel sections are assembled, the excess joint compound shall be troweled off the inside and outside faces. The inside face of the joint shall then be troweled with "Preco-Patch" or approved equal, the outside with Dewitt No. 10, Duraseal 3101, Pioneer 301, or approved equal.

#### Frame & Cover:

- 1. Frame and lids/grate shall be heavy duty (H-25 loading rated), stamped "SANITARY SEWER" and shall be by East Jordan Iron Works, or approved equal.
  - a. Solid Lid Pattern: 1310A.
- 2. Manufacturer's drawings of all castings which the Contractor proposes to use shall be submitted to the County for approval prior to the castings being ordered for the work. No commercial "Brand Name" lettering will be allowed on the exposed surface of the cover.
- 3. Watertight frames and covers shall be gray iron castings as detailed on the Plans. Covers shall be solid with non-penetrating pickholes. Manufacturer's drawings of all castings which the Contractor proposes to use shall be submitted to the County for approval prior to the castings being ordered for the work.